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ENIOR Scholastic

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WAR TRANSPORTATION ISSUE

L. 42 NO. 8

MARCH 22-27, 1943

Cover design by [illegible]

THE SUN NEVER SETS ON THE FIGHTING JEEP

U. S. MARINES CRASH SOLOMON ISLES

IN JEEPS FROM WILLYS-OVERLAND

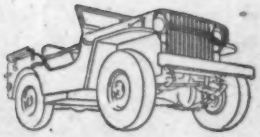
ON the shores of Guadalcanal and on the beach at Tulagi Bay, the fearless, hard-boiled U. S. Marines speeded their attack with modern Jeeps built by Willys-Overland.

In the hands of men like these, the tough fighting Jeep now adds new drive and mobility to a striking power already famous throughout the world. The jabbering Japs in the Solomons found this out when husky U. S. Marines charged up the beaches with their rugged Jeeps and cleared the enemy out of those strategic bases needed for our advance in the far Pacific.

The Jeep from Willys-Overland is outstanding among the various types of superior equipment being produced for our fighting forces and those of our allies by American manufacturing genius.

Willys-Overland civilian engineers assisted the U. S. Quartermaster Corps in designing and perfecting the Jeep adopted by the U. S. Army. The amazing, world-renowned GO-DEVIL engine that drives it with such power, speed and flexibility, is an exclusive Willys-Overland development. Willys-Overland Motors, Inc.

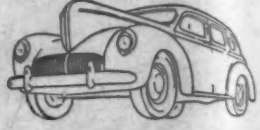
Buy More U. S. Stamps and War Bonds



U. S. ARMY JEEP

WILLYS

MOTOR CARS, TRUCKS and JEEPS



AMERICAR
The People's Car

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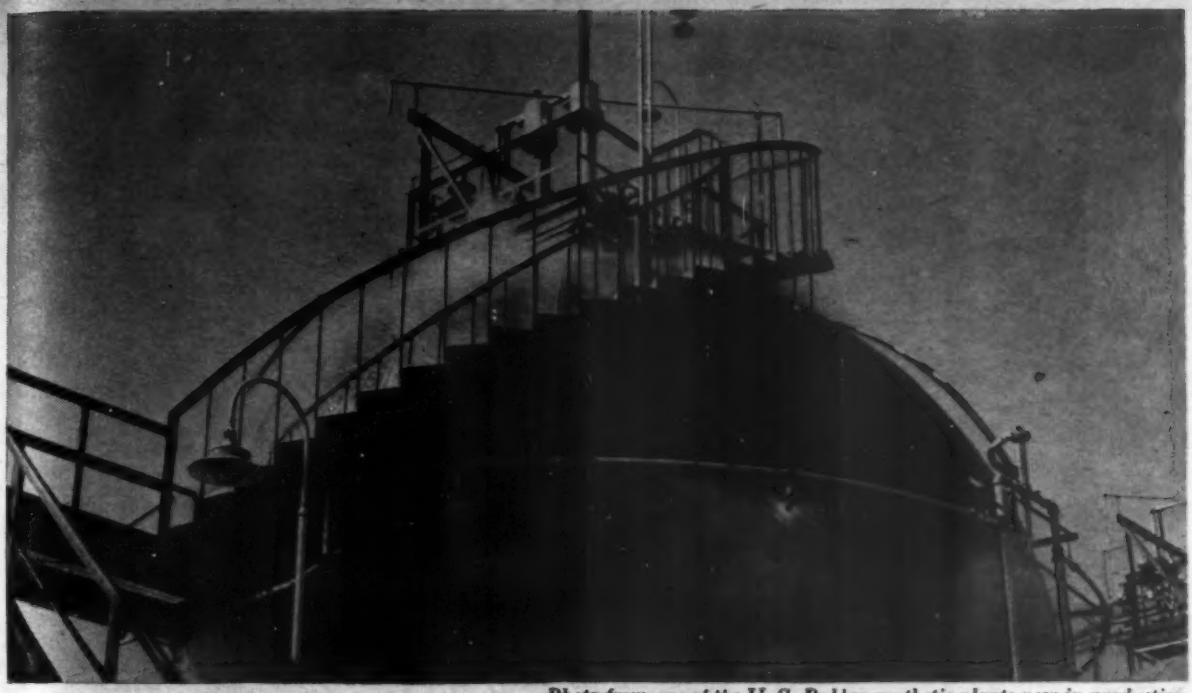


Photo from one of the U. S. Rubber synthetic plants now in production

WHAT'S SYNTHETIC RUBBER?

The discovery of man-made substitutes for natural rubber is one of the great miracles of chemistry. Synthetic rubbers are not the development of any one man, nor of any one country. Over a period of seventy years, important contributions were made by chemists of Great Britain, France, Germany, Russia and the United States.

There are five basic types of synthetic rubbers:

BUNA-S (Beu-nah-S) **BUNA-N** (Beu-nah-N) **NEOPRENE** (Nee-o-preen)

BUTYL (Beu-til) **THIOKOL** (Thi(ye)-o-kol)

Engineers and chemists of the United States Rubber Company have been working with synthetic rubbers since 1921. They have learned that no one synthetic should be used for all types of products. Each of the five basic types is capable of many variations. They have found that some synthetic rubbers are superior to natural rubber in many products. Some are equally as good. Others still have not been proved as good.

Synthetic rubbers, like natural rubber, are mixed with various other materials to give certain properties for certain purposes.

For instance, no tires of synthetic rubbers for the heavy work of the Army have been satisfactory without the use of a certain percentage of crude rubber.

Because almost all of our natural rubber is in the hands of our enemies, all the resources of America are devoted toward mass production of synthetic rubbers. Our laboratories and chemists are working night and day to fulfill their part.

After the war, all our products, including the rubber-soled shoes—Keds—which you've worn and liked so much, will be back. They will be made of whatever rubber gives you the best value, whether they are made of one of the five test-tube rubbers or of crude rubber, or a combination of both.

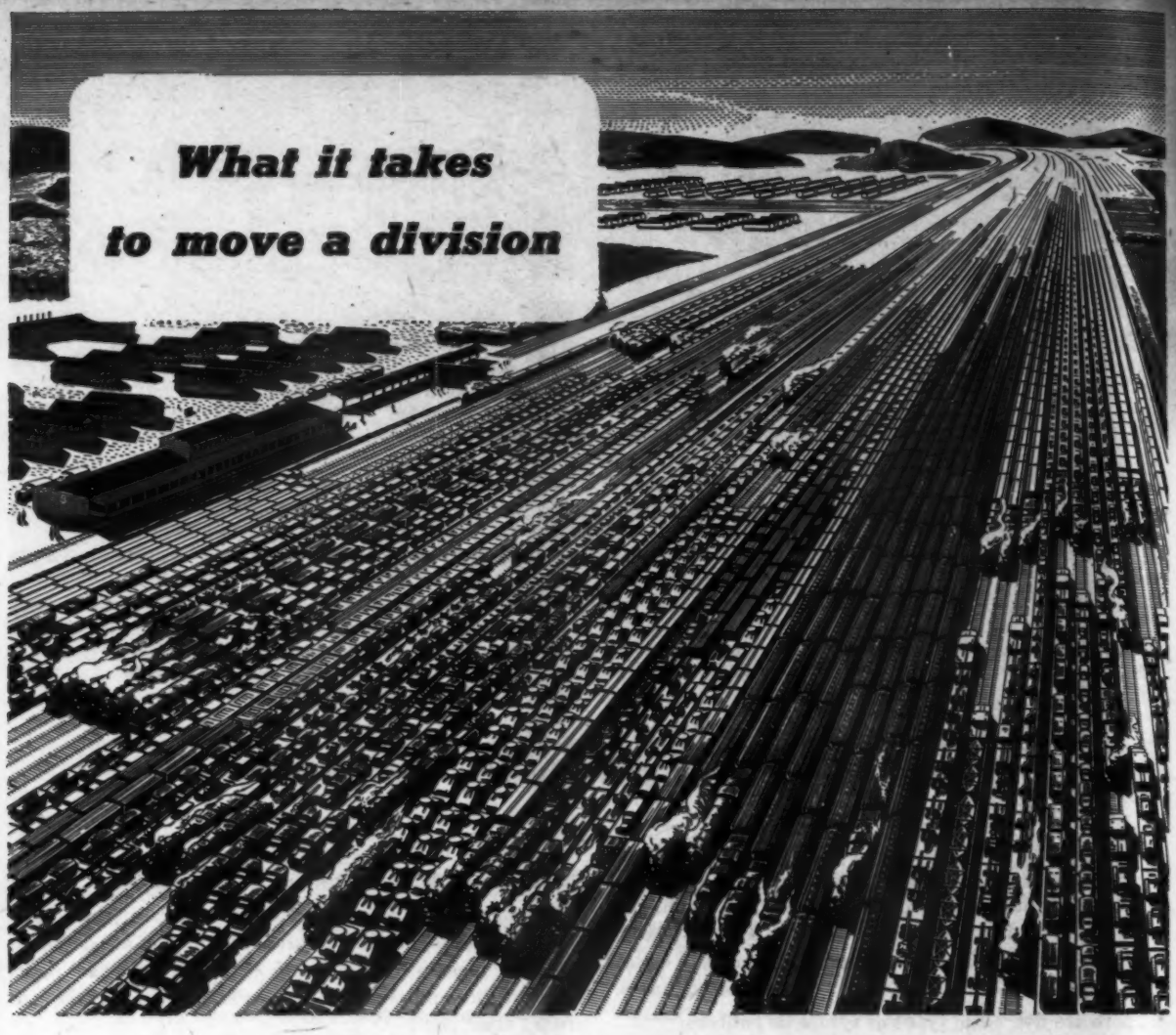
NOTE TO INSTRUCTORS: Information based on the results of vast experiments and practical applications of synthetic rubbers are incorporated in a new booklet, "The Five Commercial Types of Synthetic Rubber." It has been prepared for our own organization but is available to you, as a teacher, upon request.

REG. U. S. PAT. OFF.

Keds

UNITED STATES RUBBER COMPANY

1230 Sixth Avenue • Rockefeller Center • New York



What it takes to move a division

IF, like the eagle, you could look down on the amount of railroad equipment it takes to move a single armored division, here is what you would see . . . *75 trains!*

Many passenger trains, many freight trains—all required to move just *one* division. For a division takes all its equipment with it—tanks, jeeps, armored cars, supply trucks, tractors, anti-aircraft guns, many things. And its men, numbering about 12,000, need berths in which to sleep!

What's more, when this division moves by rail, it moves as a unit—that is, trains following one another a few minutes apart.

Now, in terms of trains, those *75 taken out* of civilian service and *put into military service*, are *about equal to* the number of passenger trains running daily over the Pennsylvania Railroad between *two of the busiest places on the face of the globe*—New York and Washington.

Multiply this one division by the many moving in this country and you can understand why . . . you may have difficulty getting a berth . . . or be obliged to stand in a coach . . . or arrive at your destination late. In fact, demand for equipment is now so great that on arriving at terminals cars must be put right back into service, so you may find them not quite so spic and span as we would like. Housekeeping facilities are adequate but there's not always time.

But Americans are taking all this like good soldiers. For they know this is a war of movement, and that movement begins right here — *in America, on the rails.*

BUY UNITED STATES WAR BONDS AND STAMPS

PENNSYLVANIA RAILROAD

Serving the Nation

★ *27,917 in the Armed Forces* ☆ *21 have given their lives for their country*

Through Burning Oil

President Roosevelt bestows medal on No. 1 hero of the U. S. Merchant Marine, who rescued six shipmates

EDWIN F. CHENEY, JR., of Yeadon, Penna., is the first merchant seaman to receive the Merchant Marine Distinguished Service Medal. On the night of March 12, off the North Carolina coast, a tanker loaded with ten thousand tons of highly inflammable crude oil, was suddenly rocked when an enemy torpedo ripped into its starboard side amidships. Captain Allen D. Tucker was in command. Cheney, 25-year-old boatswain, was at the wheel when the blow came.

The impact and explosion started Cheney off on a series of acts which resulted in the rescue of eleven shipmates, and earned for him the highest award the United States can bestow on an American merchant seaman.

Blazing with its cargo of burning oil, the tanker went down, taking with it twenty-three of its crew of forty-nine. Of the twenty-six survivors, Cheney is credited with saving six shipmates and was responsible for the rescue of five more by exercising sheer courage, in spite of painful injuries and burns.

Captain Tucker's report, in part, tells the story of Cheney's bravery:

"Cheney was on the bridge when the projectile hit, sending a huge jet of black oil into the air, filling lifeboats with spouting oil. An explosion followed and two lifeboats were stove in. Cheney left the wheel and went aft to his starboard boat station to await further orders. Knowing that the ship would go down, orders were given to abandon ship. Cheney and two seamen, unable to loosen a fouled lifeboat, kicked a starboard life raft off. Oil gushed in waves from the ship's hole amidships and, in some unexplained manner, fire started on the oil-covered sea around the stern. Seeing the burning oil on the starboard side, Cheney went port and started around the Navy gun crew quarters where the gunners were attempting to maneuver the gun. The fire on the water spread rapidly from the stern and soon surrounded the ship.

"The flames and the smoke on the surface of the sea spread from the ship, and through the almost-opaque smoke, Cheney saw shipmates on deck, bewildered. Above the roar of the flames, he shouted: 'It's your only chance boys! Follow me! Come on!' He jumped, swimming under the burning oil toward the raft he had kicked off. He swam 200 feet. Each time he came up for air he shouted: 'Come on! Raft's here! Come on!' His shipmates followed him into the water, and when they heard his shouts, they made for the direction from which the sound of his voice came. With each breath Cheney and the men took, they inhaled rancid, hot, smoky air, burning their nostrils and throats.

"When Cheney reached the raft, which was on fire, his work had just started. He put out the flames, by hanging on the side and tipping the raft until the flames were doused.

"Although he was badly burned on head and arms, and barely able to see through reddened and swollen eyes, Cheney continued to shout. He saw Ben Perona, Philadelphia mess boy, forty feet away. He was badly burned. Cheney swam to him and brought him back to the raft. A few minutes later he called to Seaman William Pryall, but Pryall was too exhausted to swim further. Cheney again left the raft and swam to Pryall's rescue. Supporting him with one arm, he brought Pryall to the raft and pushed him on it. He helped others who followed him off the burning ship by bringing them to the raft. Six were rescued by Cheney himself.

"To keep the drifting raft from getting into the path of the flaming sea, Navy Ensign William Hutchinson, who was in command of the Navy gun crew of six, of which but two survived, used Cheney and another survivor as human oarlocks. The Navy gunners rowed against the stomachs of Cheney and the survivor.

"The ship slipped under the waves just as dawn broke.

"The survivors drifted on the raft, all black with the coating of oil, which dried as the hours passed. Some of the survivors were unconscious. Those who were able did what they could to assuage the pain of their shipmates.

"Coast Guard planes circled the raft, and ten hours after the submarine had struck, the survivors were picked up by a Coast Guard cutter and taken to a North Carolina port. Of the eleven survivors taken to the hospital, six left two days later. Perona and Cheney remained several weeks. Perona is badly disfigured from burns and now works in the kitchen of a Philadelphia restaurant. Cheney, with a piece of his ear burned off, and nose, throat and right hand scarred by burns, went home to Yeadon, where he convalesced for six more weeks."

Last May, Cheney boarded a sister ship of the lost tanker. Two weeks later, in sight of the Virginia coast, the ship was struck by a torpedo and quickly sank. All hands were saved with the exception of an oiler. Cheney suffered two broken ribs. Since July, he has shipped several times, and during two trips saw lurking submarines.

In recognition of his courage, Cheney received the first Merchant Marine Distinguished Service medal from the hands of President Franklin D. Roosevelt on October 8. Said the President as he bestowed the award: "We are recognizing a form of valor just as essential as valor on a fighting ship. We are going to have more of these awards. It is really a historic occasion."

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TRANSPO

By NORMAN CARLISLE

Author of Your Career in Transportation

"KEEP 'em rolling!" "Keep 'em flying." "Keep 'em sailing!" These are the battle cries of modern war on one of its mightiest fronts—transportation.

Across the dust-swept desert of North Africa a General Grant tank rolls into battle, its powerful armor-piercing guns blazing. It is a masterpiece of rolling destruction, a product of American industrial and military ingenuity. But the real story behind that tank is how it got there—the story of transportation.

It began in Minnesota, where freight cars rolled into the red pits of the Mesabi iron mines to receive the contents of the great mechanical shovels filled with iron ore. The ore went by rail to Duluth, and then down the Great Lakes by boat, then back to rails again to get to Pittsburgh where it was forged into steel—steel made possible by the flow of coal from the mines of Pennsylvania, and by the labor of men transported to work by buses. The finished steel plates came from the mill and were rushed to a tank factory by truck.

When the completed tank emerged, it went back to rail travel, to reach a coastal port. Then into the holds and onto the decks of grey freighters ready to start the hazardous journey to North Africa. Then off the ships to be transported by military railroad to a point near the scene of operations.

Multiply one tank by tens of thousands. Consider the ten tons of equipment needed for each soldier in the field. Add trucks, guns, repair parts, food supplies. Add millions of soldiers. You begin to get some faint picture of the vast problems involved in transporting a global war.

No matter how far-flung its ultimate destination, transportation of war goods begins at home. A breakdown of transportation in our own country presents as much of a menace as a breakdown caused by enemy action in the battle zone. Transportation has been called the "conveyor belt" of the war effort.

Let's look at the organizations which fit the pieces together. The secret of our success in meeting the vast challenge of moving the goods for this war has been the fact that we have set up agencies, private and government, to perform the big jobs of coordination.

The Job of the ODT

When bombs fell on Pearl Harbor, the Office of Emergency Management rushed into action and set up the Office of Defense Transportation, which was soon familiarly known as the ODT. Joseph B. Eastman, former Federal Coordinator of Transportation, who was appointed to head this organization, found himself faced with a tremendous task. The mere list of the functions of the ODT shows how important it is. Its duties are to:

1. Coordinate transportation policies and activities of government and private agencies.
2. Prepare estimates of the loads to be carried and determine whether sufficient facilities are available.
3. Coordinate and direct domestic traffic to prevent congestion, and insure the orderly movement of men and materials.
4. Cooperate with the U. S. Maritime Commission and other agencies to coordinate domestic traffic movements with ocean shipping to avoid congestion in ports.
5. Carry out certain special functions entrusted to the President under the Interstate Commerce Act.
6. Survey storage and warehouse requirements at points of transfer and in terminal areas.
7. Represent the defense interests of the Government in negotiating rates with the transportation companies.
8. Advise upon existing or recommended

NSPORTING a global war

Biggest Moving Job in History Coordinated by the Office Of Defense Transportation and Other War Agencies

emergency legislation affecting domestic transportation.

Later the ODT was charged with the further task of including in the scope of its responsibility all rubber-borne transportation facilities.

Merchant Marine Goes to War

When the United States actually went to war, the U. S. Maritime Commission was already at work on an extensive shipbuilding program begun in 1938. Concentrating on speeding up shipbuilding, the Maritime Commission turned its other duties over to a new organization, the War Shipping Administration, headed by Admiral Emory S. Land, who was also chairman of the Commission.

Men had to be trained to man the ships, so the WSA started its training program, establishing training centers such as that at Sheepshead Bay, Long Island, where 10,000 men at a time are trained in modern seamanship. With the WSA works the Combined Shipping Adjustment Board, which is made up of both U. S. and British shipping experts, who decide the best ways to use the ships of the United Nations.

Ships take over where other transportation systems leave off. What about the railroads? In World War I the terrific burden imposed on the railroads caused a breakdown as a result of faulty coordination. Freight cars that should have been moving piled up in ports. The railroads were determined that this time there would be no such log jam. The long-range plans of the Association of American Railroads came into operation smoothly when the war crisis came.

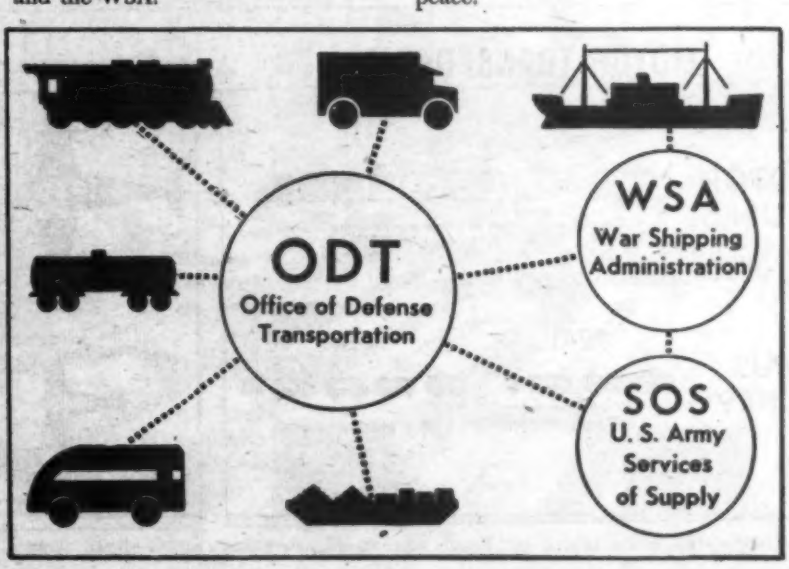
Services of Supply

Now look at the Army. SOS does not mean a distress signal to Army men. It means Services of Supply, a huge organization headed by Lieutenant General Brehon H. Somervell. In March, 1942, SOS took over the tremendous task of supplying the growing U. S. Army with all the material it needed to fight a war on many fronts. General Somervell knew what the real problem would be. Recently, after attending the Casablanca Conference, he made a 34,000-mile trip to the war zones in Africa, the Near East, and India. His comment was that he was "surer than ever that this is now a war of transportation. First it was a battle of production, now it is a battle of *distribution*."

To get that distribution, the Army has set up its Transportation Corps. The TC is literally transporting a global war, for it ties together truck lines, railroads, ships and any form of transport, other than air, necessary to get the goods to the fighting fronts. In performing these varied tasks it cooperates with the ODT and the WSA.

Transport has grown wings. To make those wings carry the right goods to the right places is the task of the Air Transport Command, the branch of the Army charged with coordinating all air transport. Although it, like the other organizations set up for war transportation, is still a youngster, it has chalked up many miracles in the brief period of its robust existence. With the help of the U. S. airlines it has crisscrossed the world with established airways, over jungles, deserts, the Arctic, the seven seas, and all the continents. Staffed by able airline executives and experts from the Army Air Forces, it has paved the way for the air transport services of tomorrow.

Thus the major pieces of the wartime transportation puzzle fit together. Cooperation has been the key to meeting the wartime transportation challenge. The same kind of cooperation will help to create new miracles of transportation after the global war becomes the global peace.



THE PROBLEM IN PICTURES

1 TROOP TRANSPORTATION PROGRESS

The American Railroads Carried

IN WORLD WAR I	IN WORLD WAR II
5,000,000 SOLDIERS IN	11,000,000 SOLDIERS IN
20 MONTHS	13 MONTHS

2 FREIGHT TRANSPORTATION PROGRESS

AVERAGE	WORLD WAR I (1918)	WORLD WAR II (1942)	CHANGE
FREIGHT CAR CAPACITY	41.6 TONS	50.5 TONS	+21%
TONS CARRIED PER FREIGHT TRAIN	565 TONS	1,031 TONS	+82%
SPEED OF FREIGHT TRAIN	11.5 MILES P.H.	15.9 MILES P.H.	+38%

3 U. S. WAR SHIPBUILDING

Each symbol represents 100 ocean-going cargo ships launched

1935

1938

1942

1943 (estim.)

4 WORLD'S MERCHANT FLEETS, 1940*

	GROSS TONNAGE
British Empire	16,806,378
United States	7,078,909
Japan	4,754,699
Norway	3,716,794
Germany	2,994,026
Italy	2,711,153

(*Covering all ocean-going ships of 2000 gross tons or over)

5 MOTOR TRANSPORT

MOTOR TRUCKS

1 out of every 5 tons of freight moved in the U. S. is carried by motor truck

BUS LINES

1941 1942

Each bus symbol represents 5 billion passengers carried

6 PRIVATE AIRLINES

	Planes Operating	Passenger Miles Flown	Express Pounds Carried
1941	324	1.4 BILLION	19 MILLION
1942	166*	1.7 BILLION	40 MILLION

*Reduction in operating fleet due to planes being taken over by Armed Forces for transport work.

LOGISTICS WILL WIN THE WAR

GENERAL NATHAN BEDFORD FORREST'S classic rule of warfare is still the key to victory: "To get there fustest with the mostest." The problem of getting the "mostest" there "fustest" is the problem of logistics.

Logistics has nothing to do with logic. It comes from the French word *loger*, "to lodge." To an army it means housekeeping under difficulties.

This war, more than any other in history, is a war of logistics. The problems of the "transport, quartering, and supply of troops" are the most important problems to be solved for victory.

The reason for this is the tremendous distances involved in this war. Soldiers and their supplies must be transported thousands of miles to battlefronts around the world. Every form of transportation known to man is being called upon to help solve the problems of logistics.

The main difficulties which the United Nations have to face are created by geography. Germany and Japan crouch like spiders at the centers of two great webs. To attack or defend any point on the rims of the webs they have only to shuttle their men and munitions across them.

The United Nations, on the other hand, are on the outside of the webs. They have to go all the way around the edge to get from one point to another. In military terms, the Axis Powers are fighting on "interior lines," the Allies on "exterior lines."

Allied transport travels primarily by sea. In the article, "Transporting a Global War," we learned what the United States has done to provide the ships and to keep the sea lanes open for these vital supplies. Just as much is being done by the Royal Navy, the great British merchant marine, and the Clydeside shipyards.

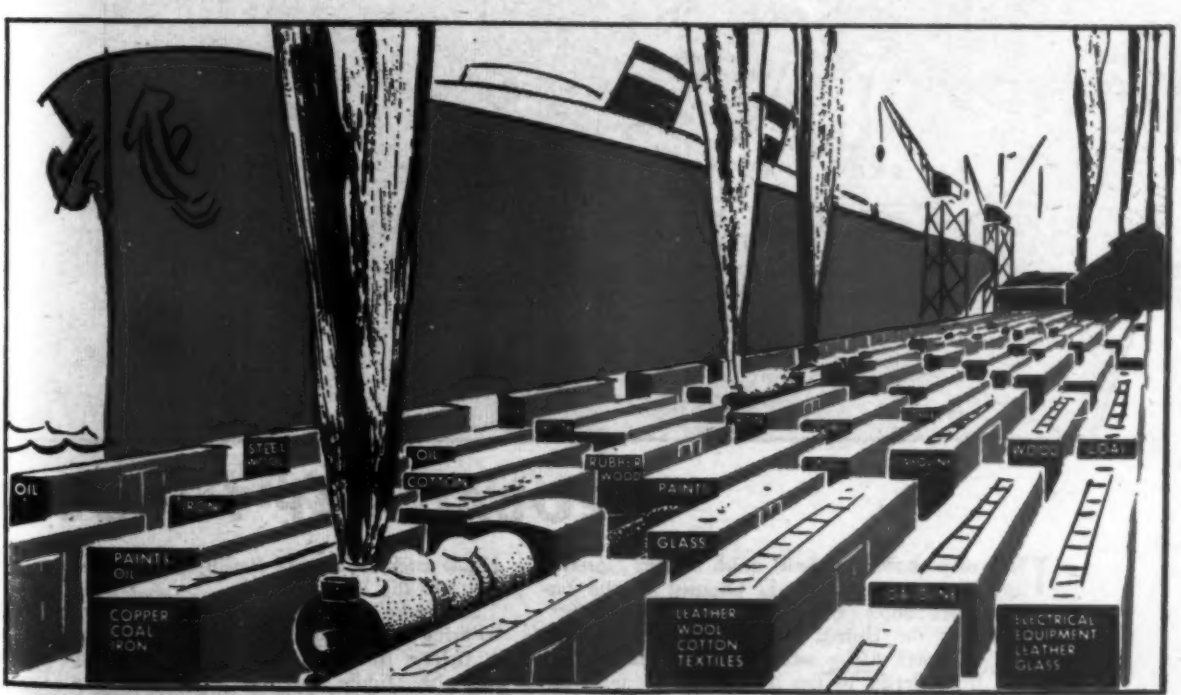
Some of our smaller allies are doing their share, too. Little countries like Norway, Denmark and the Netherlands had great merchant fleets before the war. Many of their ships are now in the service of the United Nations.

The Norwegians have made a particularly notable contribution. At the time of the German invasion, Norway had about 800 merchant ships. Only 20 per cent of these fell into Nazi hands. The rest were on the high seas or in friendly ports, and they were at once thrown into the fight on the side of the Allies.

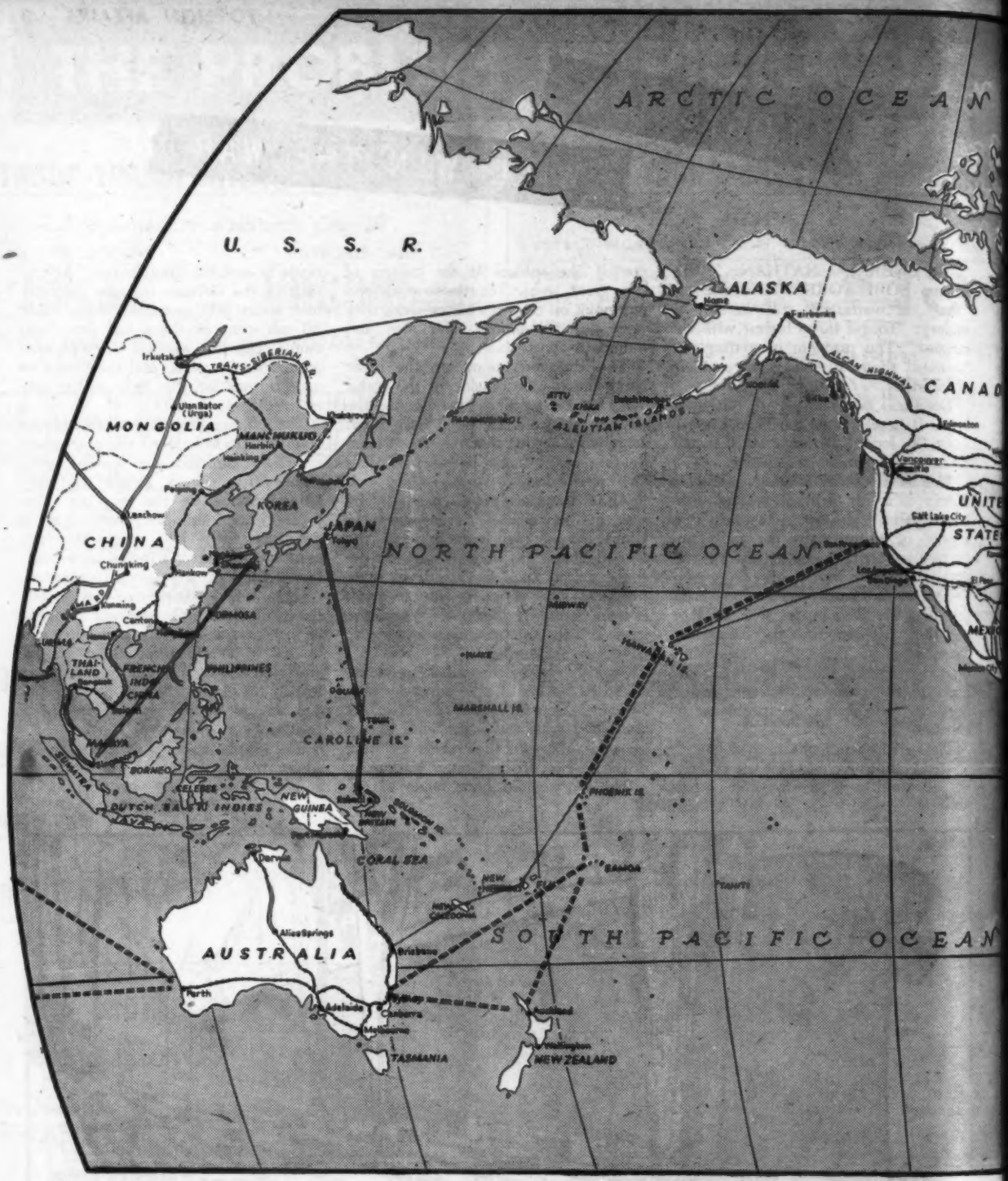
If these merchant fleets of the various countries are to be used efficiently, they must be directed by some central organization. Since Britain and the United States are the two big shipowners and ship-producers, this is primarily their job. Anglo-American military transport is handled by a Combined Military Transport Committee. A Combined Shipping Adjustment Board takes care of merchant shipping of the two nations. This board has one branch in Washington, under United States Rear Admiral Emory Land and British Sir Arthur Salter. Its opposite number in London is run by Lord Leathers and W. Averill Harriman.

The chief job of this board is to adjust the programs of the shipping

(*Concluded on page* 12)



Freight cars roll in with munitions, arms, food—sinews of war. Ships sail these to world-wide battlefronts.



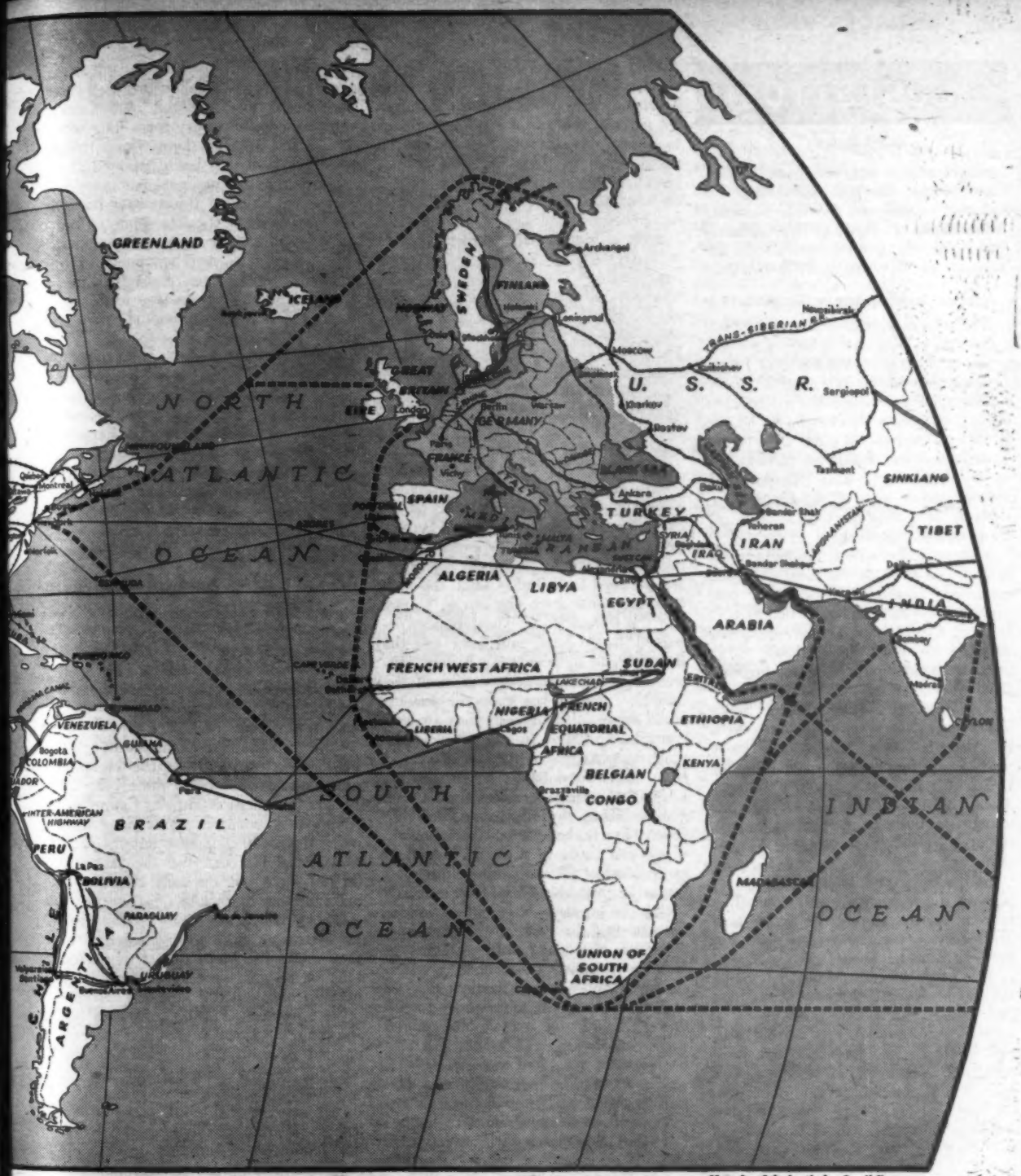
GLOBAL MAP for GLOBA

THIS map shows the Axis' much shorter "interior lines" of transportation as opposed to the far-flung, global routes of the United Nations.

Compare: the United Nations' long sea and air routes to North Africa with the Nazis' shorter rail routes from Berlin to the Mediterranean area; the United Nations' submarine- and bomber-menaced sea route to Murmansk and Archangel with the Nazis' safer Baltic and Berlin-Warsaw-Smolensk rail route to the Russian front.

Also note the long sea-rail-road journey required to bring aid to Russia via Iran and the Caspian Sea.

Airlines from the United States to North Africa and the Middle East via Natal, Freetown, Lagos, Khartoum; and via the Azores, Casablanca, Algiers, and Cairo, help the United Nations to overcome the



Map for Scholastic by Bunji Tagawa

AR TRANSPORTATION

Axis advantage on those fronts.

Compare: the United Nations aid-to-China routes by rail, road and air from Russia and India to Lanchow and Chungking, with Japan's short sea route to Shanghai and Canton in Occupied China.

Compare: the sea and air routes from the United States to Australia, with Japan's sea routes to New Guinea and her bases in the Caroline Islands.

KEY TO MAP

- United Nations shipping routes
- United Nations air routes
- Axis shipping routes
- Axis powers and occupied areas
- railroads
- motor highways

LOGISTICS

(Concluded)

agencies of the two countries, so that they do not overlap. These national shipping controls are the War Shipping Administration (headed by Admiral Land) in the United States and the Ministry of War Transport in Britain.

Mexico and Canada Cooperate

There would be no point in shipping munitions to England if they were just going to pile up on the docks of Liverpool. It would do no good to carry tanks and guns across the Atlantic to Russia, or across the Pacific to China, if those countries were not able to get them from the ports of debarkation to the battlefields. The transportation system *within* each of the United Nations is just as important as the sea lanes which lead *to* them.

The wartime transportation problem of the United States is fully discussed elsewhere in this issue. For war purposes, that system has been tied in with those of Canada and Mexico, under the direction of the Joint Defense Commissions which have been set up with those two countries.

The great Canadian-United States achievement in cooperative transport is the Alcan Highway. This truck highway runs for 1,600 miles from Dawson Creek in northern Canada to Fairbanks, Alaska. It is the only land road over which supplies can move from the continental United States to our Alaskan outposts.

At the other end of the line, we are helping the Mexicans to build up their railroad system, so that the transport of Mexican raw materials to United States factories may be facilitated.

The battle of transportation is being fought on every continent. Britain has had some tough transport knots to untie. In addition to the normal wartime strain under which our own transportation lines are laboring, the British have had to contend with the German air blitz. Roads have been gutted, trucks and buses smashed. But through the blackout and through the blitz, they have rumbled on.

Most important of all, the railroads have carried on. Trains have been machine-gunned, tunnels blocked, lines knocked out of commission for a few hours, occasionally for a day or two at a time. But the steady stream of war traffic has never been dammed.

Russian and Chinese Problems

On the other side of Europe are the Russian transportation lines. We are likely to think of the long hauls from Britain and the United States, around Africa to the Persian Gulf, or the shorter but more dangerous routes to Murmansk and Archangel, as the toughest parts of the job of sending supplies to Russia. Actually, more goods can be unloaded at those points than the internal rail, road, river and canal system of Russia can carry from them to the battlefields.

It is a spectacularly difficult job to get supplies from the Persian Gulf ports into Russia. The Trans-Iranian Railway, for example, is a vital link in this system. It runs for 870 miles over mountains that are steeper than the Rockies. Its single-track line goes through 224 tunnels, crosses 4,102 bridges, climbs a mountain range at 9,500 feet, then dives through 90 more tunnels to the Caspian Sea. It can take only a trickle of supplies.

Of all the United Nations, China has the worst transportation problems. The fall of Canton on October, 1938, cut off the last of her normal outlets for trade with the outside world. There remained three back doors: the road and railroad from Indo-China, the long overland route from the Soviet Union, and the Burma Road. The Japanese occupied Indo-China, and later cut the Burma Road by occupying Burma. Hitler's attack on Russia has reduced the quantity of supplies that the Soviets could spare, although supplies are still coming into China from Russia via the road from Sergiopol to Lanchow. Aid from the United States reaches China by way of transport planes from India.

Even when supplies from abroad do reach China, there is still the problem of getting them to their final destinations. Most of China's internal transportation is primitive. The few railroads which the Japanese have not seized are deteriorating for lack of replacements. Hundreds of miles of surfaced highways have been built, but the trucks which use them must use imported gasoline, oil and spare parts. The Chinese are forced to rely mainly on human and animal carriers on land, and sampans and sailboats on the rivers and canals.

The enemy has his troubles, too. The transportation problems of the Axis are less complicated than those of the Allies. But the Axis transport systems are steadily deteriorating, while ours are constantly improving.

Railroads—Germany's Weak Spot

Germany entered the war with a well-organized transportation system, geared for war. It was based mainly on railroads and, to some extent, on inland waterways. In spite of all their ballyhoo about roads, the Nazis do not have an efficient motor-truck system.

In transportation, as in everything else, the Germans miscalculated because they misjudged the length of the war. Their transport was equal to the demands of the blitz. But they lack the means to make the repairs and replacements necessary for a long war. The result is that their whole transportation system is badly strained.

British and American commanders know that railroad transport is one of Germany's weakest spots. Many Allied air raids on Europe are directed against railroad centers. Another policy is to send fast, light planes of the RAF over the Continent to make low-level daylight attacks on individual railroad engines.

These attacks are tremendously effective. The whole main line of our Pennsylvania Railroad was tied up for six hours the other day when a train jumped the rail. Imagine what happens to German transport when locomotives are being blown up and trains derailed day after day in dozens of different places. Some authorities believe that Germany's railroad system is her most vulnerable spot.

Thin Thread of Japanese Shipping

Japan's transportation problems are entirely different from those of Germany. Like their Nazi partners, the Japanese are moving on interior lines. But their lines are by sea and not by land. Ships, not railroads, are their vulnerable spot.

Allied planes and submarines are hammering constantly at the Japanese merchant marine which must keep all Japan's far-flung outposts supplied. American submarines alone have sunk more than 130 Japanese supply ships since Pearl Harbor. And the Japanese do not have the shipyard facilities to make up for these losses, as we do.

The Japanese are trying to free ships by increasing the carrying capacity of their railroads. More than two million tons of freight were formerly carried by ship between the Japanese islands of Honshu and Kyushu. To release this shipping, a railroad tunnel was recently opened beneath the treacherous tidal current of the Shimonoseki Straits, which separate these two islands.

The amount of shipping required between Japan and the China coast is being reduced by building up the railroad lines to Shimonoseki in Japan and Fusan in Korea. This increases the amount of freight which can be carried over the 120-mile ferry between those points.

This very hasty glance at some of the logistical problems facing the United Nations and the Axis should make very apparent what Wendell L. Willkie meant when he said that "This war is often described as primarily a war of production, but it has now been transformed into one that is primarily a war of transportation."

Civil Liberties and Democracy

By Henry Steele Commager
Professor of History, Columbia University

IT IS almost three years, now, since the Supreme Court held that a school board might legally require all children to salute the American flag, and that the religious scruples of some children did not justify an exception in their case. Now the question is coming before the Court again, and there is a good deal of speculation about the outcome of the new case.

This problem of the flag salute and the reluctant children seems—on the face of it—a minor one, a tempest in a teapot, as it were. But as in so many cases of this kind, it raises issues of profound importance—issues that go to the very fundamentals of our whole constitutional system, our whole way of life.

Acme

Members of Jehovah's Witnesses, religious order, respect the flag but refuse to salute. Religion forbids them "to worship a flag."

It raises the question, first, of religious liberty and the meaning of the guarantee in our Bill of Rights. It raises, next, the question of the right of the state to require, in the interests of national unity and patriotism, conformity to certain rules and practices. It raises, further, the question of the role of the Court in interpreting these conflicting rights and claims. And it raises, finally, the whole question of the reconciliation, in our system, of liberty and authority.

Right of the Majority

A good deal of nonsense has been written about this case and the issues involved. Conservatives have tried to make the whole thing a question of patriotism—in time of war—as if the Republic would totter on its foundations if a few school children refrained, for conscience's sake, from going through a particular ceremony. Liberals have painted the Supreme Court as an engine of despotism, and have conjured up bogeys of fascism and nazism. Most of those who have talked or written about the matter seem to have missed the point in the whole thing. That point can be put quite simply: does the majority have the right, within the wide arena of political power, to try its own experiments, even to make its own mistakes?

Let it be said, at once, that the school board requirement of compulsory flag salute presents no clear-cut issue of legality. The very fact that the courts differed on it should indicate that. No state may "deprive any person . . . of liberty . . . without due process of law" —and this has been interpreted to mean that no state may prohibit the "free exercise" of religion.

On the other hand, the state, through its local agencies, controls public education. Is the requirement that all children in public schools salute the flag a proper educational device? Is it a violation of the religious liberty of those who have religious scruples about this ceremony? How far may the legislature go in fitting the public educational scheme to its notions of what is desirable or necessary? How far should it go in yielding to alleged religious scruples?

Between Two Extremes

These are not easy questions—not nearly so easy as either conservatives or liberals would have us think. Much is to be said for the right of the legislature to control the educational program of its public schools, and if the legislature honestly believes that saluting the flag will make for a greater degree of national unity, it should, perhaps, be indulged in that belief. Much is to be said, too, for yielding as far as is possible to religious scruples, no matter how absurd they may seem to ordinary people.

Yet there are obviously limits at both ends. We would not think it proper—or legal—for a legislature to require, for example, that all students in public schools be educated to Catholicism, or to Methodism. Nor would we, on the other hand, be inclined to give way to an alleged religious scruple against any reading or writing. We should say, in the first instance, that the legislature was going too far—was violating religious freedom. We would say, in the second, that no one could refuse to have his children educated on the plea that his religion didn't permit education—that is a specious plea.

The flag salute requirement lies somewhere between these extremes. Something is to be said for it as an experiment in education. Something is to be said, too, for the religious scruples of the children involved. It is not, in short, a clear-cut case.

Democracy Learns From Experience

Then comes the real question: who is to decide? This is really the question to which the Court addressed itself. The Court—speaking through Mr. Justice Frankfurter—did not approve of this flag salute requirement. Indeed, it expressed grave misgivings about this requirement. But it did say, is this a judicial question or is it a legislative question? Mr. Frankfurter put this well:

> For ourselves, we might be tempted to say that the deepest patriotism is engendered by giving unfettered scope to the most crotchety beliefs . . . But the courtroom is not the arena for debating issues of educational policy . . . So to hold would in effect make us the school-board for the country. That authority has not been given in this Court, nor should we assume it.

This seems to me to be the common sense of the matter. The compulsory flag salute is an experiment. It is probably a mistaken experiment. It will probably do more harm than good. But what is the proper remedy for a mistaken experiment? Is it to rush to the Court and ask the Court to nullify the misguided law? Or is it rather to allow public opinion to come around to the point where it recognizes the mistake and asks the legislature to repeal the law?

Has not the majority, in a democratic system, the right to make experiments, even to make mistakes? And can we not trust our legislature to correct their mistakes? Is there, indeed, any hope for democracy if it is to depend, always, on correction from the judiciary? Is not the surest guarantee of democracy the fact that it can and does learn from experience?

FROM OXCART . .

The Evolution of Transportation

YOU — THE AVERAGE AMERICAN TODAY—have traveled faster than any of the rulers of ancient times. You can go far more miles in a small fraction of the time that Alexander the Great, Julius Caesar, Henry VIII, Louis XIV, or even Napoleon could. For in the thousands of years from the dim dark days of the Stone Age to the 19th century, the means of transportation improved less than it has in the last brief 100 years.

Back in the prehistoric period, some unknown genius found a way to train animals to carry burdens. Other primitive inventors learned how to build rafts or to make canoes out of hollowed logs, bark or skins. These were great achievements.

It Began with the Wheel

Chapter two in the history of transportation began when the wheel was invented. The idea of a wheel seems so simple that you would think almost anybody should have thought of it. But in the world today there are savage peoples who do not use wheels. Such people are still living in their own private Stone Age. The wheel made great forward steps in transportation possible. Carts and wagons were developed; roads were built—though up to the time of the Romans roads were almost always bad.

That is about as far as land transportation progressed from ancient times down to the administration of Thomas Jefferson, our third President. On the water, progress had been little better. Ships such as the ancient Phoenicians, Greeks and Romans used, rowed largely by slave power, had been improved only slightly up to the time of the Crusades. By the 1400s men had learned how to sail by wind-power alone. The great voyages of Vasco Da Gama, Columbus, Drake, and others became possible.

Highways and Post Roads

In 1790 travelers said that there was but one good road in America, the Lancaster Pike in Pennsylvania. When Washington was inaugurated, a trip by coach over the Post Road from Boston to New York took about a week of jolting, uncomfortable travel, 16 hours a day.

Then in 1806 the Federal Government decided to build the National Road—our first lifeline between East and West. Work went on for years, and as sections of the road were opened to traffic, wagons, coaches, post riders, and westward-moving settlers crowded the new highway. By 1852 the road was completed through Maryland, Pennsylvania, Ohio, and Indiana, almost to St. Louis. By that time, railroads had replaced highways in importance, and construction ceased. Many other roads were built during the early 1800s.

During these same years canals enjoyed a boom. The Erie Canal, connecting the Great Lakes and the Hudson River, was not America's first canal, but it was the longest. Completed in 1825, this canal proved that goods could be sent much more cheaply and about as rapidly by barge as by wagon. Many other canals were built during the 1830s and 1840s. With the coming of the railroads, canals lost their Number One position as carriers of the nation's commerce.

Steamboat 'Round the Bend

The first really successful steamboat in America was Robert Fulton's *Clermont*. This 150-foot vessel made its first trip up the Hudson River from New York to Albany at about five miles an hour, in 1807. The *Clermont* was a "gold mine" from the start. Fulton and his friends built more steamboats, among them being the *New Orleans*. Steamboats were the answer to transportation problems in the great Mississippi Valley for many years after the trip of the *New Orleans* in 1812. In a few years' time hundreds of paddle-wheel boats churned their way up and down the wide rivers of our Middle West. As the railroads grew in importance, traffic by river steamboats gradually declined.

Meanwhile, on the ocean, sailing vessels slowly gave way to steam. Among the first of the steamers to cross the ocean was the *Savannah*, a side-wheeler like the *Great Eastern* which Cyrus Field used to lay the Atlantic cable in the 1860s. Later in the 19th century, ships of iron and steel replaced the wooden vessels, and paddle-wheels gave place to propellers.

to stratosphere

By HALL BARTLETT

The Iron Horse Arrives

In the 1820s some citizens of Baltimore, anxious to capture some of the trade and profits going by way of New York's Erie Canal, decided to build a railroad from Baltimore out to Ohio. At first, they planned to operate horse-drawn cars over the tracks of the "B. and O." But Peter Cooper built a small steam engine which ran on rails. He called it the Tom Thumb, after the famous midget. The *Tom Thumb* was hardly more than a model, though it came close to beating a horse car in a race over the B. and O. tracks in 1830. It was not the first locomotive to run in America. That honor goes to the *Stourbridge Lion*, an English engine, which had been tried out in the summer of 1829.

Meantime, cotton merchants in South Carolina built a railroad from Charleston to the plantations. They planned to use steam engines from the start. In the summer of 1830 a locomotive called the *Best Friend of Charleston* made its first trip. By the following summer the B. and O. put its first real locomotive, the *York*, into service.

Then the railroad fever swept the United States. It is easy to see why the railroad was so readily accepted by the American people. Great distances had to be connected. Good highways were costly to build. Trains were faster and more efficient than stage coaches. Canals sometimes froze over in winter or dried up in summer. For such reasons Americans hustled to lay railroad tracks. North, south, east and west the railroad web was spun. Towns and cities along railroad lines grew and prospered.

Railroad mileage mounted to over 30,000 miles in 1860, and 53,000 in 1870. Part of this increase was because the continent had been crossed by rail in 1869 when the *Union Pacific* and *Central Pacific* lines met at Promontory Point in Utah. Gone forever were days of the *Pony Express* and the long lines of covered wagons swaying slowly across the prairies and crawling through the mountain passes. Within a few more years' time, several transcontinental lines stretched from coast to coast.

During these years many improvements had been made on America's railroads. Wooden tracks were replaced by iron and later steel rails. Morse's telegraph, invented in 1844, became the eyes and ears of our railroads. Locomotives grew steadily in size and power. Freight and passenger cars became larger. The Pullman Company put its parlor cars and sleepers on the railroad lines in the 1870s. Railroads throughout the country standardized the width of their tracks at 4 feet 8½ inches so that trains could run from one line to another, greatly simplifying the movement of freight. Westinghouse developed his air-brake, which made it possible to stop trains quickly, smoothly, and safely.

Government Steps In

In 1887 Congress found it necessary to regulate railroad rates in an effort to prevent some lines from discriminating against passengers and shippers who used others. From time to time since then more Federal regulations have been set up. Today the Interstate Commerce Commission controls America's railroads and most other means of transportation which cross the borders of our states.

The Federal Government has done more than control railroad rates. Some of our railroads could never have been built without the help provided by the Government through land grants. Altogether the Government gave to the railroads about 137,000,000 acres of land. Later the value of this land went up. Then the railroads sold the land which the Government had given them and made big profits. Moreover, many railroads received large loans from the Government.

America's Railroads Today

Today stream-lined trains glide along at speeds of 80 miles an hour. Giant locomotives weighing 350 tons haul mile-long freight trains. Electric engines and locomotives powered with Diesel motors have come into use. The lines and equipment of our 50 or more great railroad systems today are worth about $26,000,000,000. They cover nearly 250,000 miles of track—enough to go ten times around the world. In 1940 alone, America's railroads carried over 456,000,000 passengers and nearly 2,000,000,000 tons of freight. Over a million workers are kept busy. Yet only 112 years ago, the little *Tom Thumb* lost a race to a horse car.

Horseless Carriage

When America's railroad fever was at its height, a few men were tinkering with engines mounted on carriages. Some tried out steam engines. Others experimented with engines driven by alcohol, carbonic acid gas, or electricity for their "horseless carriages."

Steam-driven cars had some vogue, but quickly gave place to gasoline engines. The first such car in America

(*Concluded on next page*)

Curtiss-Wright Corp.

The 25-ton Curtiss Commando transport speeds armed infantrymen, paratroops, jeeps, field artillery and mobile equipment to battle zones.

WE CHALLENGE YOU! Tips and Tests for Social Studies Students

TRANSPORTATION QUIZ

I. FACTS AND FIGURES

If the statement is true underscore the letter T, or the letter F if it is false.

1. T F Most U. S. iron ore is shipped via the Great Lakes.
2. T F The volume of freight shipped on the Mississippi River is less now than in the later 1800s.
3. T F U. S. oil production is less than half the world's total.
4. T F The world's largest capacity pipeline runs from Texas to Illinois.
5. T F Before Pearl Harbor most fuel oil for the east came by rail.
6. T F The speed of travel changed little between ancient times and 1800.
7. T F First great highway in the U. S. was the National Road.
8. T F Canals were developed in the U. S. only since 1900.
9. T F River steamboats played little part in the growth of our West in the 1800s.
10. T F The U. S. was first crossed by rail after the Civil War.
11. T F During the 1800s, American railroads received much aid from the government.
12. T F In 1939 our railroads had more freight cars and locomotives than at the outbreak of World War I.

II. GETTING THE GOODS THERE

Underscore the most appropriate phrase or expression:

1. The Military Transportation Service is a division of: (a) the Army; (b) the Association of American Railways; (c) the Department of Commerce.
2. Merchant vessels in convoy seldom average more than: (a) 10 knots; (b) 15 knots; (c) 20 knots.
3. The weight of materials required for each man in the fighting forces abroad is about: (a) 1 ton; (b) 5 tons; (c) 10 tons.
4. Our merchant ship building program is supervised by the: (a) ODT; (b) Maritime Commission; (c) Navy.
5. When the war began U. S. merchant shipping totaled about: (a) 7,000,000 gross tons; (b) 25,000,000 tons; (c) 40,000,000 tons.
6. The transport division of the Army Air Forces is called (a) Air Transport Command; (b) Ferrying Command; (c) Air Cargo Division.
7. Of the occupied countries the one to contribute most merchant ships to the United Nations was: (a) Poland; (b) Norway; (c) Belgium.
8. "Logistics" refers to the: (a) production of war materials; (b) distribution of war materials; (c) consumption of war materials.
9. In the U. S. in 1942 there were about: (a) 2,000,000 trucks; (b) 5,000,000 trucks; (c) 10,000,000 trucks.
10. After the war it seems probable that truck traffic will: (a) permanently decrease; (b) increase; (c) remain about as in pre-war days.
11. In the post-war world it seems likely that: (a) airplanes will decline as passenger carriers; (b) railroads and waterways will carry no heavy freight; (c) there will be a new era of specialized land, sea and air transportation.

III. TRANSPORTATION BIOGRAPHY

Match the following names and phrases:

1. Arthur Gass	( ) Built America's first gasoline automobile.
2. Samuel F. B. Morse	( ) Heads War Shipping Administration.
3. Harold L. George	( ) Built Union Pacific R.R.
4. Henry J. Kaiser	( ) Heads Army Services of Supply.
5. George B. Selden	( ) Military Transportation Service.
6. Joseph B. Eastman	( ) Revolutionized shipbuilding.
7. Emory S. Land	( ) Invented the telegraph.
8. Grenville M. Dodge	( ) Heads ODT.
9. Brehon H. Somervell	( ) Heads Air Transport Command.

IV. TRANSPORTATION GEOGRAPHY

Fill in the blanks in the paragraph below with the numbers before the correct name in the following list:

1. Lanchow; 2. Fairbanks; 3. Truk; 4. Alcan; 5. Khartoum; 6. Murmansk; 7. Karachi; 8. Trans-Siberian R.R.; 9. Bandar Shahpur; 10. Alice Springs.

Now, fill in the blanks with the proper number:

U. S. lend-lease supplies go to _____, Russian seaport; The _____ highway runs through Canada and Alaska; _____ is a port in Iran; The _____ railroad runs from Moscow to Vladivostok; Motor roads from Russia connect at _____, China; An air route to Irkutsk begins at _____, Alaska; Start at _____, India, for an air journey to Basra, Cairo, Casablanca, Azores, and New York; _____ is an Australian rail-motor road junction.

Oxcart to Stratosphere

(Concluded)

was made by George B. Selden as early as 1875, but it was not commercially practicable. In 1892 the Duryea brothers built a better automobile. The following year Henry Ford made his first car. Ford Number One looked like a buggy with horse and shafts missing.

R. E. Olds, the first American to build cars in considerable number, turned out in 1902 about 2500 *Oldsmobiles*. Like Olds, Ford believed that the American people wanted inexpensive cars. In a few years, Ford had passed Olds' production record. In 1908 Ford began to manfacture the famous Model T. From then on until the late 1920s these rugged little "Flivvers" chugged and rattled along the roads.

By 1920, the "Automobile Age" was in full swing. Self-starters, durable tires, metal bodies, shock absorbers and many other improvements made driving a pleasure.

As the cars and trucks on America's roads grew in number, it became clear that more and better roads had to be built. Our road builders have not yet caught up with our automobile builders. Though we have today about 550,000 miles of hard-surfaced roads, they are for the most part not wide enough, and lack safe entrances and exits. After the war we shall have to rebuild the roads of the nation scientifically.

Air Age Arrives

Within a few years after the Wright brothers made their famous flight in 1903, airplanes had become common in the United States and Europe. During World War I, great improvements were made in airplane design and performance. In 1918 the Post Office Department started air mail service and a few airlines began to carry passengers. Bigger planes with closed cabins, like the Ford tri-motor transport planes, came into use. Lindbergh's famous solo flight across the Atlantic in 1927 probably did more to awaken America's interest in aviation than any other single thing. More airlines were organized and flew planes on regular schedule over the CAA's approved routes. Air service by clipper to Latin America and across the Pacific began in the 1920s and 1930s. By 1930, American-owned and operated airways made up about half the world's airlines.

Now we have a new way to travel and transport our goods. Now, at last, men can fly at 300 or more miles an hour at heights of 30,000 feet, over storms, oceans, deserts, or the frozen Poles. The whole world is smaller today than it was only ten years ago.

CIVILIAN PILOT

By H. Vernor Dixon

When Jenkins had to choose between wrecking the plane and disobeying Army regulations, he didn't hesitate. But it nearly cost him his job in the Ferrying Command

THIS building I was standing in had once been a hangar, but the Ferrying Command had converted it into a gymnasium.

The armed guard at my side, the one they had sent with me from the field gate, nudged me with his elbow and nodded toward the ring. "The stocky guy with the headpiece usta be a champ."

"Who cares?"

The guard squinted at me and said, "Look, chum; I ain't enjoyin' chaperonin' you around any-more'n you are. But what the heck you so steamed up about?"

I said, "Sorry, Bud. I'm not burnt at you. It's the Army. I'm a pilot. Understand? Seven years out of my twenty-seven, and all on good stuff. I want to do something for my country, so I figured I'd join this outfit. And what happens? I have to wait at the gate for twenty minutes. Then they let me come in with a guard at my side, like I was going to steal something. And who interviews me in the Transition office but a kid lieutenant. I was probably flying before he ever saw an airplane. And what does he say? 'Guard, show Mr. Jenkins around. I'm busy. Come back about nine.' Who wouldn't be burnt?"

We walked out of the gym into the burning California sun, crossed to another building and went through a door marked TRANSITION. In a small room in the corner, Lieutenant Leslie, whom I had met for a split second earlier in the morning, was seated at a desk.

He squinted at me until the guard had left, then leaned back in his chair and said, "Name's Burl Jenkins?"

"I'm THE Burl Jenkins," I said, "holder of three trans-continental records, in '38 and '39, cross-Atlantic, Bendix Trophy—"

He stopped me with a nod. "I know all that." His feet came down from the desk. "Now, this is Transition.—We'll send you out with an Army check pilot and see how good you are. You have plenty of twin-engine time, so if you make the grade you'll go right into Operations. But you'll be back in Transition later on, so we can make a four-engine pilot out of you."

He shuffled some papers and said, "You come under Civil Service at a base pay of three hundred a month. If you make the grade you'll go into the Army Air Forces as a service pilot, if we think you're suitable officer material. Otherwise, you'll remain a civilian pilot. Any objections to a commission as a second lieutenant?"

"That's a pretty low rating for a man with my experience."

His head came up and he stared at me again, hard. "Any objections?"

I snapped, "No!"

The great Ferrying Command, I thought. Nuts!

Then the check pilot came in. He nodded to me and asked, "This the man?"

Lieutenant Leslie winked at him and said, "Right. Mr. Jenkins, Lieutenant Hal Wallace. Take him up in a BT first, and if he checks okay, try him on twin-engine. See you later."

Wallace dished out instructions over the Gosport for a certain flight pattern, but in ten minutes knew he was wasting time. We came back to the field and walked over to a beautiful twin-engine Lockheed standing on the line.

We climbed in and went through the preliminary check of starting and warm-up, take-off, flight check, prelanding, overshooting procedure, simulated forced landing and after-landing procedure. Then we set her down and taxied back to the line.

We went into Transition and back into the office. Leslie glanced through Wallace's check-flight reports and looked up with a pleased light in his eyes. He reached over the desk and shook hands with me. "You're the kind of man we want, Jenkins. Sit down. We'll try to get you through this Civil Service stuff as quickly as we can." I was in the Ferrying Division—solid.

After the paper work was over, Leslie took me across the road to Operations. Behind a smooth desk was another young officer, but with two silver bars on his shoulders. He was talking to a major slouched in a chair across the room.

Leslie introduced me all around and dumped a mass of papers on the captain's desk.

Dunham finally finished the reports, shoved them aside and nodded at me. "Okay." he said. "You work out of this department from now on—Operations. It means what it says. We do the delivering. You are now a civilian pilot in the 69th Ferrying Group, 138th Base Headquarters. If you're officer material we'll have you before a board to commission you as soon as possible."

But there was a light in his eyes that plainly said, "Maybe."

He continued, talking as if he were pressed for time, "We'll show you the ropes in a couple of minutes. But the main thing to know is that your job is to deliver. Every plane you wash out is a victory for the Japs, with no expense to them. To prevent that, we give you the best of everything. A factory turns a plane over to us and they say it's okay. We don't think so. That plane's got to go through our own acceptance before we turn it over to you. When you get it she's all right. It's your private property. Understand? Just as if you owned it, which you literally do till you turn it over at destination."

He looked into the other room, spotted Wallace and called him in. "Will you show Mr. Jenkins through control, Hal?"

"Sure. Glad to."

I got up and we started through the door and Dunham called. "By the way, Jenkins, you're On Orders. Stand by."

We went into a hangar marked GROUP OPERATIONS and walked down a long hallway. At the end of the room a young lieutenant was just marking down my name on a large blackboard. Wallace introduced him as Lieutenant Silvers. Wallace said, "Do you mind taking over? Just show Jenkins the routine."

"Sure. Run along."

Leslie came in munching on a sandwich. A loud-speaker blared in the room; but I had leaned over to talk with Silvers and wasn't paying attention. Leslie tapped me on the shoulder. He was grinning.

Silvers was grinning, too. I walked over to Captain Dunham's office. He hung up his telephone as I came in and casually nodded to me. I sat down and he barked, "On your feet, Jenkins. No time for that. Do you know the route between here and Seattle?"

"Every inch of it."

"So we thought from a look at your logs. Okay. Report to Control. Now. And good luck."

He held out his hand and I shook it.

I STUMBLED out of the office and made my way to Group Operations. Silvers handed me a mass of papers and pointed out a route sheet. "You'll follow the inland route. Better lay over at Medford this evening. Not much daylight left. Our rules—and these are very strict—are that a pilot must set a ferry plane down one hour before official sunset with not less that forty-five minutes of gas in the tanks. But, as you've been told, you own the airplane."

"What airplane?"

"Lockheed. Deliver it at Municipal in Seattle. When you get there send us a collect wire advising time of arrival at destination. Send the same sort of wire, too, at the close of your day's flying."

I said, "You mean I'm to be first pilot on my first run?"

"First! You're the whole crew. Customarily, we'd send along a copilot with you but the Lockheed's an easy ship to handle, you know the route and, what is more important, we're pressed for time and men."

I walked away and picked up a chute at one place, weather reports at another, the latest information on prohibited areas, maps and an aircraft clearance report, for the benefit of the Interceptor Command. It would be no fun being shot down by an American gun crew. Then I made out all the necessary papers and brought them back to Control. Silvers had me sign the route sheet and nodded.

I walked out to the field and looked at a mess of Lockheed's standing there and found the number of the one I was to take. I climbed in and went through the preliminary stuff, then started the engines and warmed them up. After taxiing to the designated take-off point I tested the brakes again. Then I got clearance from the control tower and opened the throttles.

The great range of the Sierra Nevadas kept pace with me on my right and the lowering sun on my left. The Cascades came into view and then I spotted Medford, Oregon, dead on the nose.

WHILE still about two miles from the field, I put the gear handle in the "down" position—and nothing happened. The retractable wheels stayed where they were, tucked up in the engine nacelles. I sat there for a moment, not thinking, and ran the handle up and down. There was no reaction. The wheels would not budge. Then I really sat up with a start and checked the engine pumps. There was no pressure and only one answer for that—a leak in the pump lines.

I grabbed a Transition Instructions report that was part of my kit, pulled the ship back to level flight, and read through the emergency wheel-lowering procedure. The part that was of importance to me read: ". . . have copilot go behind his seat and open small valve on floor to the left of silver emergency hydraulic can, and then pump handle on silver can until pressure builds up. This will move wheels forward approximately 8 inches."

I put the paper down and thought, "That's nice. Have the copilot do it. And where the heck am I supposed to get a copilot?" I could see the emergency gear from where I sat, but it was a physical impossibility to reach it and fly the airplane at the same time. Of course there was nothing really dangerous about it. I could make a belly landing and smash up a good ship, but I would be able to walk away from it, still sound in wind and limb. Only, of what possible use to the Army could a cracked airplane be on a field in Oregon?

I CIRCLED around and around the field and checked over the whole situation as I went. It was about six hours flying time from Long Beach to Seattle. I was supposed to have enough gas for that much flying, with a few minutes over. But, on the other hand, if I went on I would be breaking every regulation in the book, and the Army would not like that. I thought it all over and then decided to go on. There would be better repair facilities in Seattle and the plane would, at least, be at its destination.

As soon as the decision was made I headed north for Seattle. I started climbing again to get over the mountains and reached for a lot of altitude. In a short while the sun sank below the horizon. When it got sticky dark I went onto instruments.

But the flight was smooth enough and nothing else went wrong. Seattle, even in the dim-out, was easily spotted. I came down low, circled and called the tower. Field lights suddenly blossomed into life under the port wing and I looked down at them and thought, "This is it, brother. Hang onto your hats, kids, here we go."

I dropped back for the longest possible approach and was about to call the tower again for the crash-squad to stand by, when I automatically reached for the gear handle and shoved it into the "down" position. There was a sharp whine in the cabin of the ship, and the plane slowed down another few knots. I blinked at the instrument panel and could hardly believe my eyes. The gear indicator registered Down and each wheel light was shining into my face. The gear was down and locked.

WHEN I jumped to the ground and shook hands, a pink-cheeked lieutenant walked toward me out of the darkness. "I'm taking over," he said. "We had reports on you all the way through, so I waited around. This is to be my ship."

I looked him over, a combat pilot, an infant, and said. "She's all yours."

We made out the forms against the side of the plane and he remarked casually, "Aren't you ferry fellows supposed to be nested down before dark?"

"Yeah, we're supposed to be on the ground. But I ran into some trouble. The gear wouldn't come down over Medford. Leak somewhere. Evidently the pressure built up between Medford and here. Better have it checked."

He said, "That's a pretty good alibi. You got some babe you're supposed to meet here tonight?"

I felt like smacking that smooth chin of his, but controlled myself and said, "This plane is still my private property, chum. You sign on the release that you'll have the gear checked or you don't get the ship."

He signed on the release. I didn't like that kid. I walked away and sent a wire to the Command, giving time of arrival. I could just about picture the blow-up back at the field. Then I inquired about an airliner back, but there was a bad front closing in, so I checked into a hotel and killed time for three days.

On the fourth morning it cleared and I went out to the field and was placed on the first transport leaving for Los Angeles.

Late that afternoon I stood in Captain

(*Continued on page-22*)

THANKS TO CASEY JONES

By John Mason Brown

Despite other people's children and the trials of dressing in a berth a trip on a train affords relaxation

SOME people need to be lured into travel by the threat or promise of Hopi snake dancers, the Taj Mahal, or at least the magic of faraway names. I don't. Although I like going places as much as the next Joad family, I also like the mere act of getting there. More particularly I like trains—American trains, regardless of where they are going, so long as they are moving. It is just as well I do, because a lecturer who could not abide them would be as lost as a baseball player who didn't like getting home.

To my surprise I find myself somewhat lonely in my enthusiasm for railroads. The reason is that most people appear to consider trains as no more than necessary evils. Trains, they argue, are only means of getting some place. To feel this way about them is, of course, to miss all of their pleasure and at least half of their point. The real charm of a train is self-contained and has very little to do with its destination.

The only happy travelers by rail are those who, knowing they have journeys to make, surrender themselves completely to such comforts as a railroad alone can provide. These comforts, taken advantage of, are as special as they are many and various. All of them depend upon one thing—a joyous resignation to the fact that when a timetable says a trip is to last eight, twenty, or forty-eight hours, no amount of looking at watches or squirming in chairs will cut those hours down.

The unhappy travelers are the restless ones; the ones who are always trying to go faster than the engineer; the ones who are fond of playing conductor and shake their heads like mourners if they are ten minutes late pulling into Wilmington. They give themselves away in countless fashions, these malcontents who cannot adjust themselves to trains. They come aboard with enough chewing gum tucked away in their pockets or bags to supply a stewardess on a transcontinental airliner. In their hands are four local newspapers which they never read beyond the front pages. Their arms bulge with magazines they would never think of looking at at home. They dispose of these quickly, often presenting them to neighbors as a bait for casual conversations about Roosevelt, Hitler, and the weather.

SOON they develop train thirst and keep rushing to the back of the car to consume sufficient water to provision a camel. Or they prowl up and down the aisle looking for friends they never expect to find. Or they insist, as they wander out to have countless smokes, upon accosting the porter with a "Say, George, do you think we'll make it up?" Or they get out at each stop, after muttering to all uninterested persons near by, "Well, I guess I'll just stretch my legs."

The trouble with these victims of Pullman St. Vitus is that plainly they regard trains as their enemies rather than their friends. Although they ride the Iron Horse, they are thrown by it. They are in no condition for travel because they are not exhausted. They come aboard too healthy for their comfort or anyone else's. If they prove misfits or nuisances it is because they cannot relax, because they need no rest, want no solitude, and keep wishing they were off the train instead of being glad to be on it.

That train travel has its hazards even the staunchest defender of the rails must acknowledge. There are pleasanter aromas than the scent of the most luxurious streamlined day coaches. There are more comfortable chairs than the seats of the newest Pullmans. Waiting in a swaying line to get into a crowded diner is never fun. Trying to shave in the morning when ten other people glower at you for having had the same idea and blow cigarette smoke in your face before you have had your breakfast is likewise a very minor sport. Listening to other people's kidlets as they caterwaul, or making those summer hegiras (*en masse* and decidedly *en famille*) with children of your own when they are young enough to require all the paraphernalia necessitated by the formula, must be counted as tribulations.

DRESSING and undressing in a berth, or even in a single room (especially if you have crawled on the train in evening clothes and have to get out tomorrow's suit and put away your tuxedo and repack your bag while thrashing about like an elephant in a shoebox), can also be somewhat trying. At least it can be until you have evolved a method of your own for triumphing over space. Soon thereafter the ritual becomes not only second nature but almost agreeable. For your own personal routine of disposing of clothes and slipping into pajamas while swinging around on the equivalent of horizontal bars you develop as much affection as any good acrobat must feel for his act.

These drawbacks, though challenging, are minor compared to the advantages of a train. The little trips—the ones lasting less than an hour and a half—do not count. They are sissy stuff. Although they can be agreeable, they fall into the category of commuting. The hardest journey—the truest tests of endurance and adaptability—are those which require no more than five hours. They are too long to be amateur, too short to be professional. They seem long only because they are short.

They are the trips which breed impatience and deny repose. It is while taking them that one is apt to surrender most readily to the cardinal sin of traveling by train. That cardinal sin, that archdestroyer of train comfort and train pleasure, is, of course, any consciousness of the clock which persuades you time is something to be killed.

THE wise traveler, the self-indulgent and the happy one, is he who never looks at his timetable and hides his watch. Time is the engineer's business, not his. He rejoices in the fact that he is as free from it as he is from the telephone. Unless bad news has summoned him or worries lie ahead, a train can become for him a place of refuge, a restless pause in life, a sanctuary on wheels which devours space even as it annihilates time. A good train, well used, is among the best of friends. Certainly it is the most excellent rest cure a healthy landlubber can find, if he happens to be tired and yet must keep on moving.

Train windows are the most tempting shop windows I know. Although they may not lead you as deep into the countryside as an automobile, they can be full of details, fascinating and informative. Moreover, looking through them is a wonderful voluntary act. The landscape is under your control. A sight is as much at your mercy as a sound is on the wave lengths. Eyes can turn away from what is dull, or blinds can censor what is tiresome, with the same ease that the owner of a radio exiles a dreary program from his consciousness.

Then there are the daytime naps, those open covenants with sleep openly arrived at, which gain in charm because of their sheer shamelessness. Yes, there is also the appetite which only a full day's inactivity on a train can whip up. It is the kind of appetite lumberjacks, campers, draftees, and clubwomen at a tea understand. Only it is acquired without effort. It is so lusty an appetite that not only do the steaks, the Idaho baked potatoes, and the bacon and eggs have a miraculously crisp taste, but even the canned vegetables and the overcooked coffee seem viewable, if not palatable.

Mealtime conversations with the strangers sitting at your table in the diner can be agreeable enough after the first ten teeth have been pulled. They may even save you reading the evening newspaper. But, though once in a long while they can be rewarding, all too seldom do they take the temperature of the region through which you are passing, and all too often do they dwindle into duels of cliches or that fatally arresting pastime in which two people who have never met before feel like acquaintances for a brief half hour because, after naming at least a hundred residents in a given place, they finally hit upon at least two they have known or heard of.

NO, THERE are far better places than a train for talk. But few places are a train's equal for reading. Not magazines or newspapers alone. They are merely *canapes* to the heavy meal which can follow. The classics you have always meant to read, the new books you have failed to get around to, the fat books which usually are put aside for summer, the volume you could not resist while browsing in the station bookstore, the old books you are anxious to reread to see how you and they have changed—these are the perfect companions on a journey.

Even the six stout volumes of Sandburg's *Lincoln* become manageable when a redcap is present to tote them for you. Undisturbed, at ease, horizontal in a berth, sitting upright in an observation car, or sharing a daycoach seat with a stranger, you can find few libraries as concentrating as a train. Only a deck chair, on the first two days out, before you have met any of the other passengers, is its superior.

For dull comfort, however, for the kind of comfort I have indulged in only twice in moments of complete exhaustion, give me a drawing room, made down for the night and yet occupied for a full day, with sleep permissible at will, with books littering the bed, and with meals brought in as by a summons from Old King Cole.

Who knows, too, but that when you are traveling by rail these days you may be so fortunate as to ride on a train that goes through Washington. So long as it does not stop there; so long as it comes from this city to which you never hear of trains going, but from which all of them seem nowadays to leave, you will be a made man for at least a week. Whether you have done no more than take a peek at the scaffolding on the Jefferson Memorial, you will be indistinguishable from Walter Lippmann, Arthur Krock, or Raymond Clapper by the time you get home. For the surest way to become an authority at present is just to have come from Washington.

Reprinted from *Accustomed as I Am*, by John Mason Brown, by permission of the publishers, W. W. Norton & Company, Inc., New York.

JOHN MASON BROWN

John Mason Brown should be an authority on trains, for he's traveled on them all over America. In the course of his wide experience as a lecturer he has made many humorous, interesting and unusual observations, a few of which are condensed into the accompanying sketch.

Mr. Brown is primarily a drama critic. He began his newspaper career in 1917 on the staff of the *Louisville Courier-Journal*. He was graduated from Harvard in 1923 and came to New York to become editor of *Theater Arts Monthly* the next year. For a dozen years he was drama critic on the *New York Evening Post*. Since 1941 he has been associated with the *New York World-Telegram* in the same capacity.

In the meantime he has taught courses in playwriting, the history of the modern theater, and the history of criticism at many American universities and laboratory schools. Despite all these responsibilities, he has managed to write seven notable books on the theater. An eighth volume, *Accustomed as I Am*, is a highly personal and extremely hilarious account of his experiences as a lecturer. It is from this book that "Thanks to Casey Jones" is taken.

From the Book-of-the-Month Club

By Edwin Seaver and Robin McKown

H. M. CORVETTE. By Lieutenant Nicholas Monsarrat. (Lippincott) $1.75.

Lieutenant Nicholas Monsarrat, author of *H. M. Corvette*, has served for over two years on convoy duty in the North Atlantic. Corvettes are the smallest ships that operate regularly in the North Atlantic in winter. Corvettes, along with destroyers, are responsible for the safe deliverance of the big convoys. They are "tough babies," in the author's words, and they have a right to be proud.

One of the finest things that the war can offer, he says, is the sight of a long line of ships that have been in company for thousands of miles moving slowly upriver at the end of their journey. "No wonder one watches them with pride and a certain proprietary pleasure as well: they have been a responsibility for many days and nights, and now the responsibility is discharged."

Small as she is, the Corvette, says Lieutenant Monsarrat, would "roll on wet grass." During rough weather, the Corvette rolls and pitches wildly. There is no rest, no comfort for anyone then. "If you go through a doorway, it hits you hard; if you sit down, you fall over; you get hurt. Things roll about and bang and slide crazily; and then come back and hurt you again."

One of the duties of the Corvette is to cruise around a shipwreck searching for survivors. A grim business. Often the fire from burning oil makes the ship a perfect target for a lurking submarine. Sometimes, indeed, the Corvette is faced with a frightful decision; they must leave the men on the rafts and in the icy water, rather than risk their ship.

Once, during a very rough storm, they spied a raft with three men. They threw across a line, and got two of them off. Then the line broke and they had to throw another one. The man remaining made no effort to secure it. One of the survivors explained. "He can't move. Broken arm and leg. He told us to go first. He's the mate." They tried to get alongside, but it wasn't possible in that sea. Swimming was out of the question, too, although there were no lack of volunteers. In the end, they had to leave him. . . . As they drew away, he waved to the—not a summons, but a sort of half salute. Then he lay down again.

Another man of incredible bravery was the Yorkshire seaman survivor, who had a broken thigh and a fearful gash on his face. When the Lieutenant paused in strapping up his leg, wondering whether he could stand any more, he said: "Go on—I've a bit saved up yet"; and when he was unskillfully stitching his wound, he commented: "Now then, lad, none of your hemstitching—I'm not as particular as all that."

British Information Service

Reloading a depth bomb thrower on H. M. Corvette *Dianthus*.

EXCHANGE SHIP. By Max Hill. (Farrar & Rinehart) $2.50.

At the port of Laurenco Marques, in Africa, some time ago, three exchange ships were docked. One of these was the *Gripsholm*, carrying Japanese internes from America; the other two were the *Asama* and *Conte Verdi*, bearing American and English internes from Japan and Hong Kong. Through the dock barriers, two small boys were heard exchanging comments. One was an American boy, born in China; the other, a Japanese boy born in the United States. "Gee," the American boy exclaimed, "I'll be glad to get some candy again. We didn't have anything on the *Conte Verdi* kids like." "Gosh," the Japanese boy replied. "We have movies and ice cream and chewing gum and candy and swimming pools." He paused and shook his head, grimaced, and then added seriously: "You sure got gypped!"

Max Hill tells this story in his book, *Exchange Ship*. Mr. Hill was Associated Press correspondent in Tokyo at the outbreak of the war. On December 7, 1941, he was arrested and put in solitary confinement for six months. He was charged with "filing stories detrimental to Japan's diplomacy" and he was given little hope that he would ever get out of prison again, let alone out of Japan. Although Tokyo winters are bitter cold, there was no heat in the prison. On his first day, his shoes were taken away.

By stretching himself, he could see a tree out of his high cell window. Counting the leaves on this tree, and reading Shakespeare, were his sole occupations during his imprisonment.

About six months after his sentencing, Hill was taken aboard the Japanese liner *Asama*, which carried the Americans and their families who were to be exchanged for the Japanese nationals stranded in the United States. Their boat sailed from Yokohama on June 25, 1942, called a few days later at Hong Kong and there took aboard a group of emaciated Americans from Japanese-occupied China. Among the passengers on board the *Asama* was Ambassador Joseph C. Grew.

In conversation with his fellow shipmates, Max Hill discovered that tough as his experiences had been, they were gentle compared to the stories many others told. Every story was checked and rechecked before being released, and all those which were not personal experiences, or where the names of the eyewitnesses could not be mentioned, were discarded.

The journey from Yokohama to New York took exactly three months. Mr. Hill, seeing the Statue of Liberty, found himself saying the lines beginning, "Breathes there a man with soul so dead. . . ."

THE ROUND TABLE

Student writers' own page

Edited by Charlotte Vanden Water

MANY of you must have had experiences similar to those which Donald De Pew writes about so amusingly in this contribution. There is an unexpected quality in his writing. Statements which would be plain and prosy if he were less gifted are among his merriest.

Aide de First Aid

When the telephone rang last Tuesday night, my homework and I were spread in a thin layer all over the living room. I resolved that I could not be disturbed to answer a telephone when engrossed in study, and thus fortified I was able to outwait my father. After only three or four minutes' delay, he got up and answered.

"Is it a practice alert?" I heard him say. "It is? All right."

Being the pure student type, interested only in self-improvement, I went on with my homework, and it was some thirty seconds before I realized that he had said "Alert." This meant that I would have to go to the casualty station, where someone has kindly granted me a post as a messenger.

A messenger is anyone who can set up a cot, boil instruments, carry a chest of pig iron up and down a flight of stairs fifty times, and tell the lady across the street that if she doesn't turn her light out she will get a fine geological specimen through her front window. He is required to do all these things at one and the same time.

Further, it seems that the local wardens are confirmed egoists, to such a degree that they enjoy hearing a "Sir" in any sentence addressed to them. They also like prompt action following any command they give. In this respect they do not differ greatly from the nurses, except that one does not address a nurse as "Sir." Neither does she answer to "Sister," or even "Sis." I tried it and I know.

My mother, who is also posted at the casualty station, was shortly in the car and waiting impatiently. I jumped in on her feet, shut the door on my hand, and we were off!

When we arrived at the station, I got out of the car, walked over to a door, and held it open while my mother finished parking the car and approached. A stentorian voice commanded me to shut the door with all possible dispatch, and included a remark about morons who let lights shine on the lawn for any passing bomber to use as a target. I got inside.

Someone shoved a notebook under my nose and said "Sign." I signed, looked at my watch, and wrote the time of my arrival. Too late I discovered that my watch was not working well. And now I know that blackouts are never held at three fifty-five in the afternoon.

In a casualty station a lot can be expressed in a few words. For instance, "Set up the cots" entails dragging six folding field beds into the main room, putting a specified number of sheets and blankets beside each, setting up a collection of pipes and joints laughingly referred to as a folding chair, one for each, and playfully hiding under one of the cots until pulled out by the heels by some inquisitive warden.

About nine-thirty someone told me to go to Mrs. H——'s house and see why she wasn't at her post. And HURRY.

It is a good mile to this house and on the way I found that I was going too fast. I sat on the running-board of a car to rest, without noticing that it was occupied by the person who had so rudely told me to HURRY. Oh my, such language!

Arriving back at the station I sat down in a wheel-chair to get my bearings. A man in uniform hurried past. Three uniformed nurses hurried past. A party in a warden's uniform hurried past. He stopped. He looked at me. I discovered that a man in uniform and three uniformed nurses can't hold a candle to a chased messenger for speed.

Upon arriving home some time after midnight, I beheld my homework still spread all over the room. The local policemen were kind enough to allow me to burn a light until two A.M. to finish said homework. Fortunately our school furnishes soft books on which one may rest one's head while catching up on one's sleep during, say, geometry class.

Donald De Pew, 14
Katonah (New York) High School
Baldwin Smith, Teacher

Civilian Pilot

(*Continued*)

Dunham's office. Lieutenants Leslie, Silvers and Wallace were also there, in addition to the deputy commander.

The colonel said soberly, "Your show, Dunham."

"Yes, sir." Dunham fixed me with a glassy stare and said, "Well, Jenkins, I suppose you have some good reason for this."

I felt like I was caught in a trap and that my explanation was altogether too simple, but said doggedly, "If I had set that plane down at Medford it would have been a crash landing with a nice new bomber washed out. To be truthful, I figured the same thing would happen in Seattle, with the difference that they would be able to take care of it better up there. So I went ahead. Something, I don't know what, stopped the leak, pressure built up and I was able to land okay. That's the whole story."

Dunham drawled, "Great day in the morning, man, that alibi's been used a dozen times." He leaned across the desk and his eyes were as cold as ice. "Even so," he said, "we would be inclined to give you the benefit of the doubt, except for one thing—your attitude. You came to us already convinced that the Army Air Forces were no good. So you figured that if you broke a couple of rules on your first flight you'd be able to evade a commission and remain with us as a civilian pilot."

He shoved a newspaper across the desk and there in bold type was the story of an AAF raid over the Aleutians, coming out of Alaska.

Dunham leaned back and his eyes narrowed still further. "Yes," he said. "You took part in that raid, Mister Jenkins. The plane you delivered was a unit of what's now known as the Nip Project. That plane, the plane you owned when you left here, probably did a heap of damage. That's why we like them delivered—with caution."

I looked out the window. That kid, I thought, that infant; the pink-cheeked babe. Why, while I was loafing, in Seattle he was bombing the living daylights out of the Japs and, with that particular type of plane, strafing their bases as well. My ship. Who was it said the Army blundered about? Me? I said that?

I glanced back at Dunham and that trapped feeling was closing in like a steel band. Dunham said, "You disobeyed orders. That's hardly what we're looking for in our pilots, is it?"

He was about to say something more, but Lieutenant Wallace suddenly stepped forward and said, "Begging your pardon, sir, I am partly responsible for that. I could have done something to help correct Mr. Jenkins' attitude."

(*Concluded on page 24*)

POEMS

★★★ TO REMEMBER

A WANDERER'S SONG

By John Masefield

A wind's in the heart of me, a fire's in my heels,
I am tired of brick and stone and rumbling wagon-wheels;
I hunger for the sea's edge, the limits of the land,
Where the wild old Atlantic is shouting on the sand.

Oh I'll be going, leaving the noises of the street,
To where a lifting foresail-foot is yanking at the sheet;
To a windy, tossing anchorage where yawls and ketches ride,
Oh I'll be going, going, until I meet the tide.

And first I'll hear the sea-wind, the mewing of the gulls,
The clucking, sucking of the sea about the rusty hulls,
The songs at the capstan in the hooker warping out,
And then the heart of me'll know I'm there or thereabout.

Oh I am sick of brick and stone, the heart of me is sick,
For windy green, unquiet sea, the realm of Moby Dick;
And I'll be going, going, from the roaring of the wheels,
For a wind's in the heart of me, a fire's in my heels.

Reprinted from "Salt Water Poems and Ballads" by John Masefield, by permission of the Macmillan Co., publishers.

A HEALTHY vigor, a tang of earth and sea, links together many English poets who are otherwise unlike. In Chaucer and Shakespeare, in Burns and Browning, in Stevenson and Kipling, this vital, salty quality appears. Since 1911 John Masefield has been the leader of the poets who stir sluggish blood with the lure of the romantic and adventurous. Like many of the famous company, he is primarily a teller of stories. "The Everlasting Mercy," a story of a prize-fight, and "The Dauber," the story of an artist-sailor, brought him his first fame in 1911 and 1912. They are still acknowledged as among the most powerful and interesting long poems of our generation.

"A Wanderer's Song" has a less quiet homesickness, a more definite unrest, than "Sea-Fever," a poem which I am sure you already know. In the unquiet moments that beset us so often in the spring, the first stanza is vigorously alluring and we are all anxious to escape to "where the wild old Atlantic is shouting on the sand."

In the second and third stanzas Masefield imagines the sights and sounds that will tell him when he reaches the harbor that at last he is "there or thereabout." Most of you are probably more familiar with ships and harbors than I am, but for the benefit of those of you who must read stories of the sea as I do, dictionary in hand, I'll pass on my own discoveries in trying to understand the pictures as well as the mood of this poem. The "sheet" is the rope or chain by which the sail is moved, a "yawl" is a fishing boat, a "ketch" a two-masted ship. Line 11 cannot be understood unless we know that a "hooker" is a fishing smack and that it is "warping out" when it is leaving the dock. The rope of the anchor is wound around the "capstan" and the sailors are singing as they wind it.

JOHN MASEFIELD

ROMANTIC and healthy adventure are as characteristic of John Masefield's life as of his poetry. In his early teens he ran away from a comfortable home to become a sailor. For several years he was a wanderer, working once in New York City, and once in a carpet mill in Yonkers, New York. In his recent book *The Mill* he told about this life of his youth and demonstrated with pardonable pride that he still understands the warp and woof of carpets as thoroughly as of poetry.

While working in the mill, he first read the great English poets and felt an urge that was to be even stronger for him than the call of the sea—the urge to write poetry himself. His first volume appeared in 1902, when he was twenty-four, but he did not become famous until 1911. During the first World War he served with the Red Cross. Since 1930 he has been Poet Laureate of England. Despite this position, he is a poet of "the scorned—the rejected," not "of the princes and prelates," as he proclaims in his poem, "A Consecration." He is also a writer of plays and novels, though he is best known as a poet.

SHARPEN YOUR WITS

Tips and Tests for Students of English

QUIZ YOURSELF!

I. FACTS ARE FACTS

Besides telling a good story, "Civilian Pilot" also gives information on the Ferrying Command. When you've read the story, circle the T for true statements or the F for false ones.

1. T F When a civilian pilots enters the Ferrying Service, the Army takes for granted that he needs no special training.
2. T F Civilian pilots come under Civil Service laws.
3. T F Civilian pilots of the Ferrying Command are somethin, like test pilots, who determine for the Army whether or not a plane is acceptable.
4. T F Ferrying Command regulations place the emphasis on getting a plane through, no matter in what condition.
5. T F Civilian pilots who make good are usually commissioned in the Army Air Forces.

II. DID YOU GET THE POINT?

After reading "Thanks to Casey Jones," underline the best completing word or phrase in each of the following sentences:

1. The author of the sketch regards trains (a) merely as a means of getting somewhere; (b) as pleasant in their own right; (c) as safer than airliners.
2. He thinks that restless travelers (a) worry too much about time; (b) read too many books; (c) are already tired when they get aboard.
3. For Mr. Brown train travel is (a) entirely without hazards; (b) hazardous but enjoyable; (c) a nuisance to be put up with resignedly.
4. According to the author few places are a train's equal for (a) conversation; (b) reading; (c) dressing and undressing.

III. WHAT'S WRONG HERE?

Read the paragraph below. It concerns the "Victory Story of the Week." One sentence in the paragraph is inconsistent with the facts of the story. Strike it out.

When the tanker was hit by a torpedo, Edwin F. Cheney, Jr., led several survivors through smoke and burning oil to a life-raft. His shipmates could not always see him in the flaming water, but they followed his shouts. Reaching the raft, Cheney put out the fire in it by means of a portable extinguisher he had carried along. He helped to bring other survivors to the raft when they were unable to swim further. The Navy Ensign in charge of the gun crew used Cheney and another survivor as human oarlocks. Survivors were picked up by a Coast Guard cutter ten hours later. Cheney, after convalescing, has shipped several times since.

EXPRESS YOURSELF!

PULL UP A CHAIR

—And join the discussion:

1. Do you agree with John Mason Brown's opinion of trains? Why or why not?
2. Do you think the Army had a right to be skeptical of Burl Jenkins? Why or why not?
3. What, in your opinion, makes a hero? Is he motivated by a simple desire to save his own skin? Or is he simply unable to see others suffering? Does he think about what he's doing or does he act impulsively?

WRITE IT DOWN

1. After reading this special issue devoted to War Transportation, write a brief essay telling what you think is the greatest problem faced by the United Nations in transporting men and materials for global war.
2. Perhaps you personally have a fondness for something which other people ordinarily shun. It need not be train travel or any kind of travel—perhaps it is snakes, or rainy weather, or castor oil, or old clothes. Try to write about it as amusingly as Mr. Brown has in "Thanks to Casey Jones."
3. Write a book report similar to those in "Chats About New Books," on a book you have recently enjoyed reading. Keep it brief.
4. Read the essay in this week's "Round Table." Compare it with "Thanks to Casey Jones." Then write a brief comment and criticism, comparing the two essays and estimating the good and bad points of each.

MIND YOUR LANGUAGE

WORDS TO THE WISE

Match up sides! For each word in Column I find the correct meaning in Column II. You'll have two meanings left over. All words are from "Thanks to Casey Jones."

1. malcontent	a. a much-used, stereotyped expression
2. accost	b. envious; jealous
3. hazard	c. danger; risk
4. glower	d. to address
5. hegira	e. a person dissatisfied with existing state of affairs
6. paraphernalia	f. to wipe out or destroy
7. tribulation	g. sorrow or trial
8. evolve	h. pleasant to taste
9. cardinal	i. apparatus; equipment
10. sanctuary	j. Mohammed's flight from Mecca
11. annihilate	k. flower container
12. covenant	l. to develop or unfold
13. palatable	m. to frown or scowl
14. cliche	n. principal; chief
	o. a place of refuge
	p. an agreement or pledge

WORDS OF THE WEEK

corvette (kôr vĕt'). A small anti-submarine vessel of about 600 tons.

projectile (prō jĕk' tĭl). A missile; a body projected by exterior force.

davit (dăv' ĭt). A form of crane for hoisting boats.

(First word from "Chats About New Books." Last two from "Victory Story of the Week.")

Civilian Pilot

(Concluded)

Leslie also stepped forward and said. "I should have explained things to Mr. Jenkins, particularly the rapidity with which we get things done in this new Army. I, too, am partly to blame."

Silvers mumbled, "Me, too, Captain. He made some cracks I didn't like, but I just let them go."

The others nodded with him and I stared at them. They actually believed me to be guilty, but were trying to help me out, anyway.

The colonel leaned forward and said, "Jenkins, do you think a thing like this could happen again?"

He was going to drop it. I could see that. All I had to do was to admit that I had made a mistake and assure them it wouldn't happen again. What to say was a tough problem, the toughest I have ever had to face.

A stenographer came in and placed a telegram on Dunham's desk. He read it through, then sat there for a long time staring at me. Then finally he cleared his throat and said. "This is from the combat unit now in Alaska. It reads: 'EXTEND THANKS CIVILIAN PILOT BURL JENKINS FOR INDICATING FAULTY GEAR PUMP STOP UNDOUBTEDLY AVERTED LATER CRASH STOP GREETINGS TO MEMBERS YOUR STAFF FOR SPLENDID COOPERATION NIP PROJECT.'"

Dunham spread the telegram on his desk and smoothed it out with his hands. He cleared his throat a few times, glanced sidewise at the colonel, who was carefully studying some detail about the floor, then got to his feet with a hasty glance at his watch. "Well, what do you know about that? It's almost time for dinner."

"Really?" the colonel said, looking up very surprised. "Y' know, the officers' club should be open about now. I—uh—could do with a little something. How about the rest of you gentlemen?"

All of us left the office together, glad to get out of there. We started down the road toward the club and on the way the colonel said, "Jenkins, about a commission in the Army Air Force—I—uh—would personally like to send in the recommendation, if you don't mind."

Mind? What did he think he was talking about?

You say you want a Liberator in Bombay? A Fortress in Australia? A Lockheed in London? A Mustang in Egypt? You've come to the right man, brother. Second Lieutenant Burl Jenkins, that me. A shavetail. And tickled silly about it.

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SC

Class

I. Unit

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Classroom Activities

FOR ALL CLASSES

(Especially Social Studies)

I. Unit Overview

This issue of *Scholastic* is given over almost entirely to war transportation. Ample and stimulating material is provided to serve as a basis for a unit study of this type. By way of introduction to a study of transportation, past and present, present the following questions for brief preliminary discussion: (a) To what extent does transportation contribute to human progress? (b) What examples from past history can you give to illustrate your answer to the first question? (c) In general, what types of mechanical transportation are available today? (d) To what extent are they specialized? (e) In what sense is the outcome of World War II more dependent upon the efficient adaptation of transportation than in previous yars? What examples or comparisons can you give to support these statements? (f) How can war transportation techniques be adapted to serve the needs of a peacetime world?

Preliminary Exercise for the Entire Class:

There are eight full-page advertisements in this issue, dealing in an institutonal way with some form of transportation. List the types of transportation made possible by these organizations in Column I. In Column II indicate what each of these means of transportation does now to meet the needs of war. In Column III indicate by the words "greatly," "considerably," "some," "little," to what extent this war service by each of these types of transportation curtails its service to civilians. In Column IV estimate for each of the means of transportation or products listed how essential it will be in the post-war world, using similar words to those in Column III to show their degree of utility. Pupils should retain table for future reference. Teachers are requested to communicate to the publishers their opinions of the classroom value of the advertisements and their experiences in using them.

II. The Logistics of Global War

Have all pupils read "Transporting a Global War" on pp. 6-8 and "They Move the Army," p. 36. Raise these questions: (a) Beginning at the iron ore pits how many times and types of transportation are used before the tank rolls onto the beach in North Africa under its own power? (b) Is the transportation picture about the same for most kinds of munitions and supplies? (c) How many trains are needed to move an armored division (see ad on p. 4)? (d) How many tons of equipment are needed by each soldier on the Pacific or North African battle line? (e) What Army organization is chiefly concerned with the movement of troops and supplies?

Exercise for Further Investigation:

Consulting this article and accompanying pictograph, list the various agencies, civil and military, that coordinate our transportation factories for war.

Read "Somervell of the SOS" by C. J. V. Murphy, *Life*, March 8, 1943, pp. 83-94, and report on his accomplishments.

Committee Report: How To Get What Where When.

A committee of pupils, assigning one for each type of transportation discussed in this issue of *Scholastic*, could present a panel discussion on the problem of logistics. The chairman should not only introduce the speakers but should also discuss major differences in the logistics problems of the United Nations and the Axis. Before this committee reports all members of the class should read "Logistics Will Win the War" on p. 9. (Social Studies and Combined eds.). Appropriate items mentioned in the bibliography should be utilized by the committee. This report might best be used as a summarizing or concluding exercise, with questions and discussion from the class.

III. The Evolution of Transportation

To grasp the significance of transportation today requires some knowledge of its history. Social Studies classes should read "From Ox-Cart to Stratosphere" on pp. 14-15. Then raise these questions: (a) Why did the means of transportation change but little until about 150 years ago? (b) Do you believe that, in some respects, human progress can be measured in terms of the speed of transportation? (c) What do you consider to be the greatest single advance in the history of transportation up to 1750? Since 1750? Why? (d) Would modern society be unable to exist without modern transportation?

Exercise for the Entire Class:

Make a combined time-line and bar graph to show: (a) development of American transportation; (b) comparative hours of time required to travel 100 miles.

Report: Read the "ad" entitled "The Great Train Mystery of 1954 A.D." on p. 30 for some general ideas. Then report to the class on what would be likely to happen in your own community if railroad service were eliminated for a solid week. Name also other types of transportation upon which your community depends.

IV. Transportation Hall of Fame

The story of American railroad builders is an epic in itself. The picture-biography of Grenville M. Dodge shows the great contribution of a comparatively little known man. The class might be interested in selecting several Americans who stand out in the history of transportation. For guidance consult books on transportation listed in the bibliography. Each means of transportation should be represented. A transportation museum consisting of models or pictures of the high points in transportation's history could be prepared by the pupils.

V. Shipping in the War

There are three articles in this issue of *Scholastic* that deal with wartime shipping: "Life Lines of the Seven Seas"; "Inland Waterways"; and "Your Job in the Merchant Marine." "Fighting Fuel" describes the work of the tankers specifically. The map on pp. 10-11 (Social Studies and Combined) shows world sea and air transportation routes.

[Continued on next page]

Transportation Issue

The regular staff of *Scholastic* Publications has been assisted for this special War Transportation Issue by Norman V. Carlisle as Guest Editor. Mr. Carlisle is director of Industrial Research Associates. He is the author of several books on vocations, including *Your Career in Transportation* and *Your Career in Engineering*. He also serves as Vocational Editor of *Scholastic*.

COMING NEXT WEEK

(March 29—April 3 Issue)

For Social Studies:

The President vs. Congress: Differences on Domestic Policies.

United Nations Discuss How Present Cooperation May Be Extended to Post-War Period.

Planning in the Past, by Henry Steele Commager.

Builders of America: Theobald Smith.

For English Classes:

"Mrs. Murgatroyd's Dime," a war savings playlet by John LaTouche.

Oil in the Allegheny Valley (Rivers of America), by Frederick Way.

"I'm a Medical Technician," by Corporal Harold F. Tarbox.

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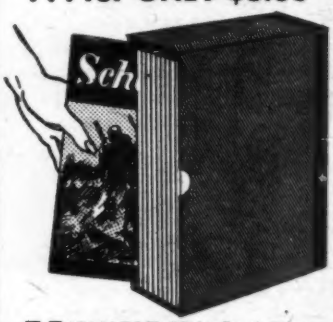

VALUABLE Unit Study material on Transportation in this issue can be used term after term. You should take this opportunity to have a set available at this low rate. Perhaps your school fund or library fund can be used to purchase this set and the special attractive file case.

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Raise these questions: (a) To what extent do our inland waterways serve war transportation needs? (b) According to the chart "U. S. War Shipbuilding," p. 8, how many ships were launched in 1938, 1942? How many will probably be launched in 1943? (c) What problems of material and man power does this shipbuilding program raise?

Report: One or more pupils could report on canals and other inland water routes in the U. S. today. Tonnage figures are available in the *World Almanac.*

Report: Consulting the *World Almanac* for 1943, pp. 808-11 determine the distance in nautical miles from New York or San Francisco to five or more of the foreign seaports indicated on the map on pp. 10-11. Divide nautical mileage by 10 to get the approximate hours required for a convoy to reach the port in question. Reduce hours to days required. Members of the class should write in number of days on the appropriate sea-route shown on the map.

VI. Motor Transport

The two articles, "This Is a Motorized War" and "War Workers Must Reach Their Jobs," deal with two phases of automotive transport. Raise these questions: (a) How do trucks supplement other means of transportation in this community? (b) If these means of transportation were eliminated what local war industries would suffer?

Report: Consult the *World Almanac* for 1943, p. 505, and report on the number of ton-miles of freight hauled by truck in 1940. What was the percent of this tonnage to the total volume of freight carried by all types of transportation?

Graph: Make a bar graph to show: (a) Passengers carried in city and suburban buses from 1931 to 1942; and (b) passengers carried on inter-city buses from 1931-42. Consult the *World Almanac* for 1943, p. 505.

VII. U. S. Railroads and the War

Our railroads were unable to meet the demands placed upon them in World War I and consequently were taken over by the Government. This has not been the case in World War II. The railroads were ready and have met the challenge despite the enormously increased demands upon them. How are the railroads doing this tremendous job? The class should read the article on "U. S. Railroads Accept a Challenge" and study the appropriate charts on p. 8. Then discuss these questions: (a) What conditions must railroads face these days that differ from their normal loads and schedules? (Read the "ad" on p. 4 for an example. Others are mentioned in the article). (b) What is the duty of the Military Transportation Service and what is the Association of American Railroads? (c) Is this evidence that the railroads did not intend to be caught as they were in World War I?

Report: Make a daily check for one week on freight cars unloading in or near your community. Report on the length of time these cars remained idle. Be sure to select a local or factory siding for observation.

Graph: Make a series of bar graphs to show freight revenue, miles traveled by freight trains for 1930, 1932, 1936, 1938, 1940, 1941. See the *World Almanac* for 1943, p. 949.

Report: The railroads of America are essentially one great integrated system. The ad on p. 41 gives a clear illustration of this fact. Consult the references cited in the bibliography and report your findings to the class.

VIII. Air Transportation and War Needs

Airplanes transcend other means of transportation because they can go almost anywhere and their speed is far in excess of surface vehicles. These two factors have revolutionized logistics. Have members of the class cite examples to show how airplanes are now being used to meet war needs, exclusive of combat work. Further examples are mentioned in "Sky Transport Girdles the Globe." Raise these questions: (a) What debt do the Army and the Navy owe to our air transport lines and aviation industry? (b) Would we have been able to achieve our present air power without the "backlog" provided by the airlines? (c) In what specific ways are airlines serving our Armed forces directly? (d) After studying the chart, "Private Airlines," on p. 8, what conclusion or generalizations can you reach? (e) How can the experience gained flying war cargoes and passengers be adapted to peacetime needs?

Exercise for the Entire Class:

On p. 35 of this issue of *Scholastic* (Combined ed.) there is an advertisement entitled "War Thinking." Read this "ad" carefully. How many points making for peace are given in the "ad"? To what extent do you concur with these points? List your conclusions or arguments and be prepared to defend your views in class.

Free enlargements of this ad are available to teachers on request to William R. Russell, Scholastic Publications, 220 E. 42d St., New York City.

IX. Oil—The Life-Blood of Modern War

We frequently call the present age the "age of Iron." It would not be far

wrong to call it the "age of Oil." Civilians, especially in the East, have learned their dependence upon petroleum products these past few months the hard way. The article, "Fighting Fuel," describes ways and means of oil distributions for war needs. Raise these questions: (a) Prior to the outbreak of war how was most of the oil sent to east coast points? (b) Why has an oil shortage developed in the East particularly? (c) What means of transporting oil are there apart from tankers? (d) Do you know of any pipelines under construction now? (e) Why can't our railroads relieve this oil shortage?

Report: Consult any recent commercial atlas and report on the pipeline systems that stem from the oil fields to other parts of the U. S.

Report: Where are the main oil fields of the U. S.? Consult any good economic geography textbook.

X. Post War Transportation

The class might tabulate the forecasts concerning post-war transportation made in "Transportation Futurama." Pupils should underscore forecasts that they consider possible but unlikely. Those they feel are probable should be starred. Pupils should discuss their conclusions in class.

Key to "We Challenge You"

(Transportation Quiz, P. 16)

I. 1-T; 2-F; 3-F; 4-T; 5-F; 6-T; 7-T; 8-F; 9-F; 10-T; 11-T; 12-F.

II. 1-b; 2-a; 3-c; 4-b; 5-a; 6-a; 7-b; 8-b; 9-b; 10-b; 11-c.

III. 5, 7, 8, 9, 1, 4, 2, 6, 3.

IV. 6, 4, 9, 3, 8, 1, 5, 7, 10.

FOR ENGLISH CLASSES

Civilian Pilot

Here is a story which serves two purposes: (1) to provide information about how the Ferrying Service works; (2) to tell an interesting tale. A third purpose might be included—to make a point. Ask your pupils to consider what this point is.

Questions for Discussion:

1. How has the telling of the story in first person increased its effectiveness?

2. In your opinion, are the actions of the chief characters sufficiently motivated to make them convincing? If so, how? If not, why not?

3. In writing a story of this sort, the author must take care that his factual presentation doesn't slow down his story. How has this caution been exercised in this particular case?

4. "Civilian Pilot" was chosen for this issue because of its pertinence to the subject of war transportation. Show how it and stories like it help readers to understand some of the problems which face nations trying to get their men and supplies to the scenes of global warfare.

Assignment for the Class:

Write on one of the following topics: Why Army Discipline Is a Good Thing; How Our Pilots Are Protected; The Need for Speed; The Method of War Transportation I Consider Most Valuable; How Present-Day Transportation Facilities Will Influence the Future.

Thanks to Casey Jones

This selection, while not concerned with war transportation, is an interesting example of the familiar essay about a familiar subject — trains. Pupils will read it for the fun there is in it, but they should be encouraged also to appreciate Mr. Brown's style of writing.

To promote this appreciation, have pupils look in the essay for examples to illustrate vivid writing, fruitful imagination, wide knowledge and information, deft phrasing, wit. Above all, be sure to emphasize the fact that this essay appeals partly because it has "universality"—in other words it is not just the experiences of a man riding a train, but may be applied to all men on all trains anywhere. What gives it an added attractiveness is its wit and humor, its avoidance of the trite and the usual, its stimulating conversational tone.

Assignment for the Class:

Bring to class your own favorite personal essay. It may be one from a magazine or a newspaper, or it may have appeared in a book. Whatever it is, be sure it is a worthy example. It should have universality, an informal tone, and interest. Of course humor and wit are all to the good, though they may not be necessary. In class you will be given an opportunity to meet with a small group of your classmates so that you may all share one another's selections. The best essay will be chosen in each group and this one given a hearing before the entire class.

TO IMPROVE READING SKILLS

A system for testing reading speed and accuracy was suggested on page 2-T of our issue of February 22-27, 1943. Average reading speeds are usually estimated as follows: good readers, 500 words a minute; fair readers, about 300 words a minute; poor readers, 200 or less. With this schedule in mind, you may test your pupils' accomplishment on any article in the magazine by simply counting the words and classifying pupils in groups according to the time they require.

If you wish to use this week's "Victory Story," for instance, which contains about 1,000 words, you would place those who finish in 2 minutes or less in speed group 1; those requiring from 2 to 3 minutes in speed group 2; and those needing a longer time in group 3.

For checking pupils' comprehension of a given article, you may ordinarily use the quiz which appears on the "Sharpen Your Wits" page. If there is no quiz, a simple true-false test may be devised, with highest scores being classified in group 1, next highest in group 2, and so on. Since the quiz over this week's "Victory Story" does not readily lend itself to this classification, a true-false test is provided:

1. The entire crew of forty-nine was saved when the tanker went down. (F)
2. Cheney and two seamen kicked a starboard life raft off. (T)
3. The oil on the water caught fire and surrounded the ship. (T)
4. The order to abandon ship was carried out without confusion. (F)
5. When Cheney reached the raft, he sat down for a long rest. (F)
6. No attempt was made to steer the raft out of the path of fire. (F)
7. Cheney was not at all injured by his experience. (F)
8. He received the Merchant Marine Distinguished Service Medal. (T)

TO ENCOURAGE FURTHER READING

Chats About New Books

Pupils should understand that these book "chats" were originally radio talks and that they are not properly criticisms but merely brief, conversational reviews. To be sure that each pupil understands what he reads, use these questions:

H. M. Corvette

1. Why does the Corvette roll and pitch so wildly?
2. What are her responsibilities?
3. Why should the book make exciting reading?

Exchange Ship

1. What is illustrated by the little story told at the beginning of the review?
2. How did Mr. Hill amuse himself during his imprisonment?
3. What distinguished passenger was aboard the *Asama*?

It is to be hoped that discussion of these books will bring about mention of others on similar themes, and that your pupils will wish to investigate some of them. The book stores and libraries just now are filled with eyewitness accounts of experiences having to do directly or indirectly with the war. A class period might very well be devoted to some discussion of these various books.

Key to "Sharpen Your Wits"

I. 1-F; 2-T; 3-F; 4-F; 5-T.

II. 1-b; 2-a; 3-b; 4-b.

III. Strike out third sentence, beginning "Reaching the raft . . ."

Words to the Wise: 1-e; 2-d; 3-c; 4-m; 5-j; 6-i; 7-g; 8-l; 9-n; 10-o; 11-f; 12-p; 13-h; 14-a.

Teaching Aids on Transportation

BOOKS AND PAMPHLETS

For Junior High School Pupils:

Keir, M. *The March of Commerce*, (Pageant of America, Vol. IV), Yale University Press, New Haven, Conn.

Miller, J. *Fares, Please! From Horse Cars to Stream Liners*, D. Appleton Co., New York, 1941.

Muller, C. *How They Carried the Goods*, Junior Literary Guild, New York, 1932.

Reck, F. *The Romance of American Transportation*, Crowell, New York, 1933.

U. S. Maritime Commission. *America Builds Ships*, U. S. Maritime Comm., Washington, D. C., 1940.

For Senior High School Pupils:

Bartlett, H., *Social Studies for the Air Age*, Macmillan, New York, 1942.

Carlisle, N. V. *Your Career in Transportation*, Dutton, New York, 1942.

Dunbar, S. *A History of Travel in America*, Tudor, New York, 1937.

Gruen, F. *America's Battlefronts*, Foreign Policy Ass'n., New York, 1943.

Henry, R. S. *This Fascinating Railroad Business*, Bobbs-Merrill, N. Y., 1942.

Renner, G. *Human Geography in the Air Age*, Macmillan, New York, 1942.

National Resources Planning Board, *The Future of Transportation*, Supt. of Documents, Washington, D. C.

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Association of American Railroads, *A Study of Railway Transportation*, Ass'n. of Am. R.R.'s, Washington, D. C., 1942.

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Lissitzyn, D. *International Air Transport and National Policy*, Council on Foreign Relations, New York, 1942.

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Air Transportation

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"Air Lines of the Future," *U. S. News*, Feb. 12, '43.

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Fortune, Mar. '41. Aviation issue.

Kaiser, H. F., "Air Cargo Transport," *Life*, Aug. 10, '42, p. 22.

Kemp, A. N., "Transportation in the Post-war Period," *Aviation*, Feb. '43, p. 118.

Klemin, A. "Cargo Planes of the Future," *Sci. Am.*, July, '42, p. 36.

Schildhauer, C. H., "Air Transport," *Flying*, Feb. '43, p. 127.

Scholastic, Air Age Series, Sept. '42 to date.

Speas, R. D. "The Future for Aviation," *Education*, Oct. '42, p. 117.

Stanton, C. I., "Wanted: Some Clear Thinkers," *Flying*, Dec. '42, p. 18.

"Winged America," *Building America*, v. VIII, no. 2.

Wittels, D. G., "Flying Boxcars for a Global War," *Sat. Eve. Post*, Sept. 12, '42, p. 12.

"World Airways," *Newsweek*, Mar. 1, '43, p. 26.

Ziff, W. B., "Report from Washington," *Flying*, Mar., '43, p. 32.

Shipping—Oceangoing

"Atlantic Convoy," *Life*, July 27, '42, p. 64.

"Battle of Shipping," *U. S. News*, Jan. 22, '43, p. 13.

Kaempffert, W. "Concrete Ships," *Sci. Digest*, Oct. '42, p. 62.

Klemmer, H. "Convoys to Victory," *Nat'l Geog.*, Feb. '43, p. 193.

Monsarrat, N. "Corvette on Convoy Duty," *Harpers*, Dec. '42-Jan. '43, p. 169.

Muller, E. "Convoy to Murmansk," *Readers Digest*, Nov. '42, p. 139.

Palmer, C. B. "Trip to the Hot Corner," *N. Y. Times Mag.*, Feb. 28, '43, p. 8.

Pribichench, S. "War on the Western Ocean," *Fortune*, Oct. '42, p. 98.

"Shipbuilding Records," *Bus. Week*, Dec. 26, '42, p. 67.

Taper, B. "Life with Kaiser," *Nation*, Dec. 12, '42, p. 644. See also *Readers Digest*, Feb. '43, p. 78.

"Transporting an A. E. F.," *U. S. News*, Sept. 18, '42, p. 24.

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"Wartime and the River," *Fortune*, July, '42, p. 69.

Railroads

Brandt, K. "Germany's Vulnerable Spot," *For. Aff.*, Jan. '43, p. 221.

Eastman, J. B. "Huge Task of the Railroads," *N. Y. Times Mag.*, Jan. 31, '43.

"How the Railroads Did It," *Fortune*, Nov. '42, p. 120.

"Lesson in Tank Cars," *Bus. Week*, Feb. 6, '43, p. 15.

Motorized Transport

Greenbaum, L. "Riding With the Army," *N. Y. Times Mag.*, Jan. 31, '43, p. 39.

Martin, Pete. "A Bundle for Hitler," *Sat. Eve. Post*, Oct. 31, '42, p. 20.

"Trucks Help to Break Transportation Bottleneck," *U. S. News*, Oct. 23, '42.

VISUAL MATERIALS

Graphs, Charts, Statistics, and Maps

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Paullin, C. O., *Atlas of the Historical Geography of the United States*, pp. 131-37, Carnegie Institute of Washington and the American Geographical Society of New York, 1942.

Films (16 mm.)

Transportation, 2 reels, silent, U. S. Department of Interior, Bureau of Mines, Experimental Station, Pittsburgh, Pa.

Men and Oil, 2 reels, sound, Films, Inc., 330 West 42 St., New York City, Rent, $3.00.

Transportation, 1 reel, sound, Erpi Classroom Films, Inc., 35-11 35th Ave., Long Island City, New York, Sale, $45.00.

Highways of Yesteryear, 1 reel, sound, W. O. Gutlohn, Inc., 35 West 45 Street, New York City, Rent, $1.50.

Wheels of Empire, 1 reel, sound, Films Inc., 330 West 42 St., New York City, Rent, $1.50.

Inland Waterways, 3 reels, sound, Inland Waterways Corp., 211 Camp St., New Orleans, La., free.

Queen of the Waves, 1 reel, silent, General Electric Co., Visual Education Section, 1 River Rd., Schenectady, N. Y.

Men and the Sea, 1 reel, sound, Bureau of Motion Pictures, Office of War Information, Washington, D. C.

The Freight Yard, 2 reels, sound, New York Central System, 466 Lexington Ave., New York City.

"Railroadin," 3 reels, sound, General Electric Co., Visual Education Section, 1 River Road, Schenectady, N. Y., free.

Lake Carrier, 1 reel, sound, Bureau of Motion Pictures, Office of War Information, Washington, D. C., free.

Our Empire of the Air, 1 reel, sound, W. O. Gutlohn, Inc., 35 West 45 Street, New York City, Rent, $1.50.

Winged Horizons, 4 reels, sound, Transcontinental and Western Air, 80 East 42 Street, New York City, free.

TRANSPORTATION AGENCIES

Apply to the following agencies for additional information:

Aeronautic Chamber of Commerce of America, Shoreham Building, Washington, D. C.

Air Transport Association of America, 135 South La Salle St., Chicago, Ill.

American Automobile Association, Pennsylvania Ave. at 17th Street, Washington, D. C.

American Trucking Associations, Inc., 1424 16 St., NW, Washington, D. C.

Association of American Railroads, Transportation Building, Washington, D. C.

Automobile Manufacturers Association, New Centre Building, Detroit, Mich.

Civil Aeronautics Administration, Commerce Building, Washington, D. C.

Mississippi Valley Association, St. Louis.

National Aeronautic Association, 1025 Connecticut Ave., Washington, D. C.

National Association of Motor Bus Operators, 331 Tower Building, Washington.

National Resources Planning Board, Washington, D. C.

National Safety Council, 20 North Wacker Drive, Chicago, Ill.

Office of Defense Transportation, Post Office Building, Washington, D. C.

United States Maritime Commission, Commerce Building, Washington, D. C.

BUILDERS OF AMERICA

PICTURE BIOGRAPHIES FROM U.S. HISTORY

TEXT BY FRANK LATHAM

DRAWN BY FRANK RONAN

GRENVILLE M. DODGE (1831-1916)

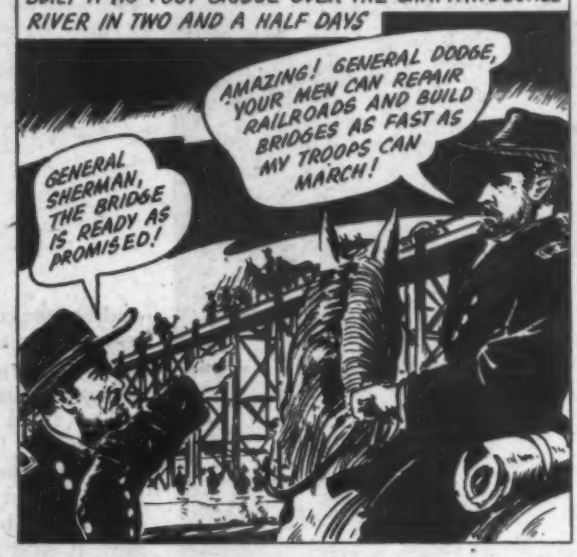
Pioneer Railroad Builder

GENERAL GRENVILLE M. DODGE was a great railroad pathfinder who laid the foundation of the transportation system in the Western half of the United States. He worked as a railroad engineer, builder, and manager for 60 years.

During the War Between the States, General Dodge won fame as an engineer rather than as a leader of troops in battle. General Grant and General Sherman considered Dodge to be without an equal as a builder of railroads and bridges needed to move armies and supplies.

General Dodge was born in Danvers, Massachusetts, and was graduated from Norwich (Vermont) University, a military school. He went West in 1852 and served as an engineer for the Illinois Central, and Mississippi and Missouri Railroads.

1 DURING GENERAL W.T. SHERMAN'S MARCH THROUGH GEORGIA, IN 1864, GENERAL DODGE'S ENGINEERS BUILT A 710-FOOT BRIDGE OVER THE CHATTAHOOCHEE RIVER IN TWO AND A HALF DAYS


GENERAL SHERMAN, THE BRIDGE IS READY AS PROMISED!
AMAZING! GENERAL DODGE, YOUR MEN CAN REPAIR RAILROADS AND BUILD BRIDGES AS FAST AS MY TROOPS CAN MARCH!

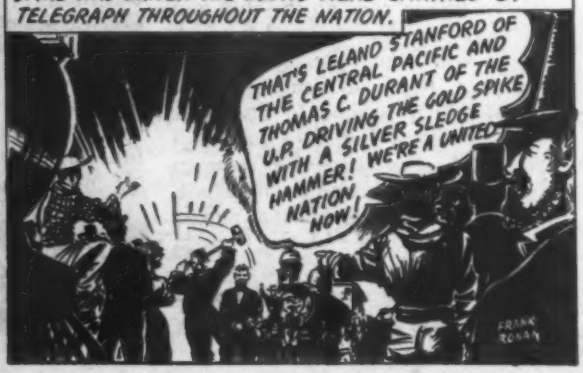
2 WHILE SERVING IN THE ARMY, DODGE WAS CALLED TO WASHINGTON BY PRESIDENT LINCOLN TO DISCUSS THE BUILDING OF A TRANSCONTINENTAL RAILROAD.

GENERAL DODGE, I RECALL A DISCUSSION WE HAD AT COUNCIL BLUFFS IN 1859 CONCERNING THE BEST ROUTE FOR THIS RAILROAD. THIS ROAD IS URGENTLY NEEDED TO UNITE THE EAST AND WEST AND I WANT YOUR ADVICE ON IT!

3 IN 1865-66, DODGE COMMANDED TROOPS AGAINST THE INDIANS IN THE WEST. DURING ONE SCOUTING TRIP HE WAS ATTACKED BY INDIANS. AND, WHILE ESCAPING, HE ACCIDENTALLY DISCOVERED A PASS THROUGH THE BLACK HILLS.

4 DODGE BECAME CHIEF ENGINEER OF THE UNION PACIFIC RAILROAD IN 1866. HIS CONSTRUCTION CREWS, MOSTLY EX-SOLDIERS, LAID DOWN FROM THREE TO EIGHT MILES OF TRACK A DAY WHILE FIGHTING OFF THE INDIANS.

5 ON MAY 10, 1869, AT PROMONTORY POINT, UTAH, THE U.P. RAILS MET THOSE OF THE CENTRAL PACIFIC, WHICH WAS BUILDING EAST FROM CALIFORNIA. AS THE FINAL SPIKE WAS DRIVEN THE BLOWS WERE CARRIED BY TELEGRAPH THROUGHOUT THE NATION.


THAT'S LELAND STANFORD OF THE CENTRAL PACIFIC AND THOMAS C. DURANT OF THE U.P. DRIVING THE GOLD SPIKE WITH A SILVER SLEDGE HAMMER! WE'RE A UNITED NATION NOW!
FRANK RONAN

Life Lines of

U. S. Maritime Commission

Cargo for fighting fronts 'round the world is stowed snug by stevedores who work by sunlight and floodlight.

THE attack began at dawn. It came screaming from the skies as torpedo bombers hurtled out of the low overcast.

The grey convoy, spread from horizon to horizon on the roiled black waters of the North Atlantic, seemed to huddle and brace itself for the coming shock. The escort ships churned the waters, darting like angry hens to protect their brood from danger. Above the convoy little clouds of smoke began to appear in clusters as the cough of the ack-ack guns filled the air.

A freighter singled out for destruction moved sluggishly as two torpedo bombers sped down toward it. They came in close to the ship and the ugly torpedoes dropped forward. There was a heavy explosion. The freighter stood motionless for a minute, then seemed to disappear as her cargo of munitions went skyward. A few surviving seamen bobbed on the debris-strewn surface.

A destroyer, guns blazing, moved in swiftly, and one of the torpedo bombers suddenly lost a wing.

Meanwhile menace had appeared from another source. In the very midst of the convoy, among the helpless merchant vessels, a black periscope appeared, and more torpedoes slashed through the water.

The attack began like that, off Spitzbergen. It went on all that day, from time to time, as the raiders from sea and sky came back. Next morning it began again. And the next. It went on for a week. Finally the battered convoy, minus several of its ships, approached Murmansk. Seamen aboard the surviving ships shrugged their shoulders and were glad to get ashore. They had been through other trips like that.

Thus through the fury of attacks from beneath the sea and from the air move the grey convoys of ships laden with the goods of war.

The Bridge of Ships

Look at the distance for a moment. Australia is 10,000 miles away, or over 40 days of travel at 10 knots an hour. Supplies to Russia's northern ports must travel over 4,000 miles. The greater the distances, the more ships are needed, and the more chances there are for a ship to be sunk.

Ships—thousands of ships! That was, and is, the crying need of this war. The U. S. Maritime Commission with its great ship-building program, has been filling part of the need. And in the earlier months of the war the American steamship companies patriotically threw their full resources into the great struggle of sea transportation. Gleaming white luxury liners which had once carried passengers to and from South American ports were disguised with drab grey paint, and ploughed the sea lanes to far northern ports. Steamship lines gave up their identity for the duration, pooled their docking and shipping facilities.

But no matter how you add it up, we had all too few ships for the prodigious job. There was a United Nation's pool of about 30 million gross tons to draw from—not much more than the total available in 1917, when transportation needs were far less. Hungry packs of U-boats roved the sea lanes, meting out destruction with vastly more efficiency than they achieved in World War I.

There were two answers to the problem of sea transport: "Build more ships!" "Use convoys!"

The first answer has been a bold one, carried out in such shipyards as those of Henry J. Kaiser and many others. Ships that took 240 days to make began to go down the ways in 55 days. Such figures brought scornful doubt from Axis propagandists. Yet 55 days soon came to look like a long time, for last September President Roosevelt witnessed the launching of a ship only a little more than four days after work was begun on it in the shipway.

The shipbuilders had learned their lessons from the automobile manufacturers. Prefabrication and assembly line technique were applied by building whole fronts, complete deckhouses, and other large parts,

Convoys of Merchant Ships Face Peril from Sea and Sky to Deliver Goods for Global War

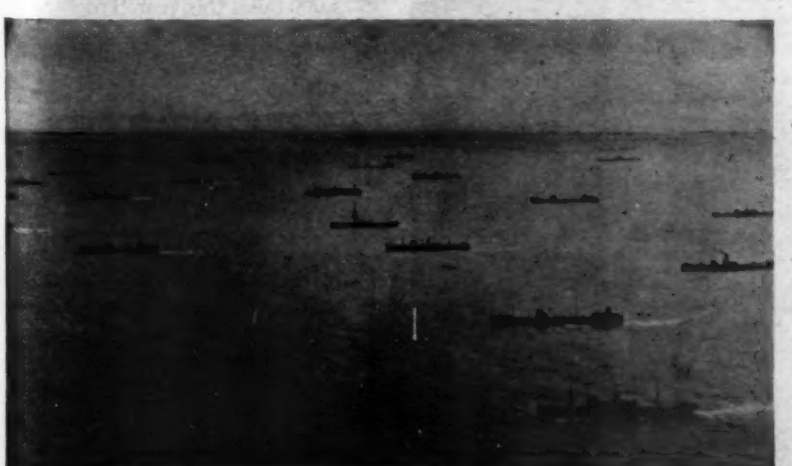
the Seven Seas

and assembling them with giant cranes, instead of putting them in place piece by piece. Welding eliminated millions of rivets.

The shipbuilding achievement of American yards, sponsored by the U. S. Maritime Commission, is unparalleled in history. Starting from scratch in the period after World War I, when we let our merchant marine badly decline, the USMC began a new period of building in 1938, which was tremendously intensified after passage of the Lend-Lease Act. In 1942, 746 ocean-going freighters of over 1000 tons were launched—better than two a day. In 1943, the Commission estimates that our shipyards will turn out from 1,800 to 2,000 ships with a gross tonnage of nearly 30,000,000. This—just one year's "crop" of ships—is as much as the entire merchant fleets of all the United Nations combined at the start of the war!

But it is not enough to *build* ships. Somehow they must be protected after they venture into the ocean. In World War I the convoy system was worked out. It meant simply having ships travel in large groups of 50 or more. Protecting them are many fighting ships—chiefly destroyers—ready to beat off attack.

There are plenty of things wrong with the convoy system. For one thing, lack of speed. If your slowest ship travels at 8 knots, that is the speed of the whole convoy, for no ship dare stray from the group. Time is lost in grouping convoys, and getting ships together from several ports. Then at the destination end, time may be lost in unloading because so many ships arrive at the same time. Ships which in peacetime would make a round trip from the United States to some foreign port in a month may require as much as three months in a convoy.



Official U. S. Navy Photo

A bridge of ships, grey-painted, ever-alert, stretches from horizon to horizon, carrying the tools of war to the world's far-flung battlefronts.

U. S. Maritime Commission

"Build more ships!" Shipyards answered the cry, used assembly line methods, turned out ships like cars.

The Germans have developed new techniques of under-sea warfare which are hard to overcome. Super-powerful submarines with tremendous range travel in packs and "gang up" on their prey.

There is another answer—build faster ships that can outrun submarines.

What It Takes to Fight Abroad

If carrying the goods to England and Russia is a big job in itself, carrying the equipment for our fighting forces overseas is even bigger. The American Expeditionary Force to North Africa was carred in a mighty armada of more than 350 war ships and 500 troop and supply ships. It takes ten tons of materials to put each man in the fighting forces at the start, and a ton and a half a month required to keep him in the field.

In the shipment to North Africa were more than 700,000 different items of equipment and supply. There were 390 different articles of clothing and individual equipment; 10,000 different pieces of equipment for the Signal Corps; 68,000 different items of medical supplies; 100,000 Engineering Corps items, including such big ones as full-sized locomotives, bridges, and storage tanks. Ordnance alone required more than a quarter of a million different items.

This Is a MOTORIZED WAR

Fast and flexible, our motor truck system forms a vital link in war transport

"BUT the convoy will be gone." It looked bad for the load of life rafts that was to go to the South Pacific. The life rafts were rolling from an assembly line in New England. Could they reach the West Coast in time for loading?

A transcontinental trucking concern promised that they could. So began an exciting race across the continent. The life rafts were loaded directly from the assembly line into the capacious bodies of a row of huge trucks. As fast as one was filled another took its place. Relief "tractors" were waiting in Chicago and Denver. New drivers took over at these points. In spite of a raging storm extending from Chicago to beyond the Rocky Mountains, and a bridge washout requiring a 200-mile detour, the life rafts reached San Francisco in time to be hoisted into the steamer 36 hours ahead of schedule.

Why not build ships at points far inland? It sounded like a good idea, because materials were plentiful near the factory, and there was sufficient labor. A good idea but what about transportation? Trucks solved the problem by hauling bulky ship parts to the final assembly yard on the coast.

An aircraft factory faced a transportation problem. Day and night it was necessary that material move swiftly between the number 1 and 2 plants, 19 miles apart.

Trucks were the answer. Truck-trailer units hauling 8,000 pounds each shuttle back and forth continuously. They are viewed by the factory management almost as part of the factory assembly line.

Whatever the demands, the truck has proved its versatility in wartime transportation. These flexible units of transportation go everywhere, into many communities not reached at all by railroads. Along the heavily traversed stretches of U. S. 1 from the shipyards of Maine to the flying fields of Florida, the trucks are on the move. Many-wheeled monsters pound Route 66 out of Albuquerque. Trucks thread their way right into the factories, rolling between assembly lines. They haul guns, parts of ships, parts of airplanes, steel, coal, food.

Last year there were roughly five million trucks in the United States. They traveled at least 18 per cent as many ton miles as those traveled by the railroads, with cargoes which are difficult for railroads to handle. The railroads themselves use trucks —no less than 94,000 of them in 1941.

The importance of trucks in the transportation of food alone is tremendous. Over 77 billion pounds of milk and cream will be hauled 1,775,000 miles this year. Trucks will move 83 million hogs, 23 million sheep and lambs, 100 million cases of eggs.

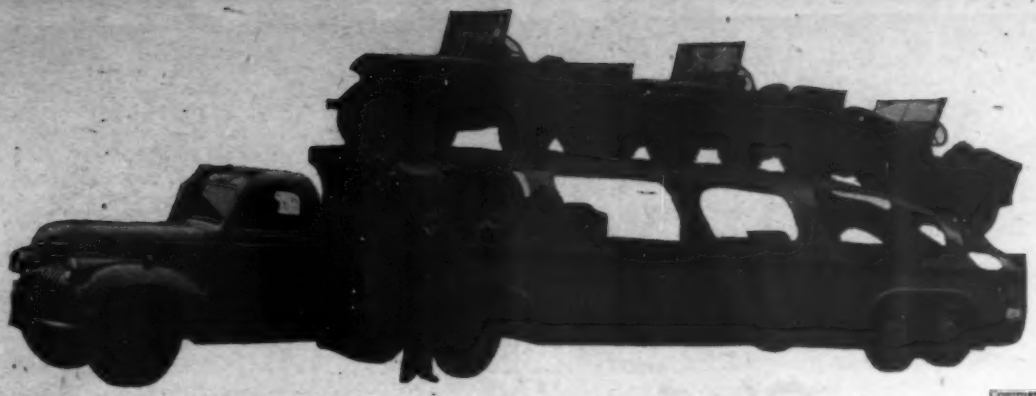
Official U. S. Army Photo

Half-track is Army's iron mule—cross between tractor and scout car. Versatile, it speeds over rough or soft ground, tows field artillery.

700,000 Trucks Keep Rolling

Seven hundred thousand trucks are the backbone of the for-hire highway transport system. If you were to stand at a reviewing stand which these trucks were passing at the rate of one every second, you would watch them go by from Monday noon, night and day, until 10 a.m. the following Monday. That's a lot of trucks, and it takes 1,250,000 men and women to "keep 'em rolling."

"This country has gone through a revolution in transportation in the last twenty years." Joseph B. Eastman, Director of the Office of De-



Commercial Carriers

Automobile carrying unit loaded with jeeps made by Willys-Overland is ready for long haul.

fense Transportation, is speaking. "The highway vehicle running on rubber tires has been responsible for that revolution."

Mr. Eastman knows what he was talking about. The truck has a unique place in transportation, for it has an adaptability not found in any other form of transportation. A truck can go anywhere. It has enabled factories to operate far from railroad facilities, close to their source of supply. It can meet the toughest sort of driving conditions.

It has been well said that "this is a motorized war." Trucks serve the Army by the tens of thousands—tiny rugged jeeps bouncing over terrain that would shake any other car to pieces; great vans to carry airplane parts, and whole portable airports; aircraft maintenance shops on wheels; troop-carrying trucks which whisk armies swiftly forward in a war of movement—the variety of Army trucks is almost unbelievable.

Trucks operating on the American highways now face a problem in the form of rubber. President Roosevelt sent this letter to the "Owners and Drivers of America's Motor Trucks."

"The five million motor trucks in this country are a vital asset to the war production effort. They represent a powerful arm of transport we did not have during the last war and can be of tremendous aid in helping speed the flow of farm, military and industrial products so necessary to victory. Unfortunately these motor trucks are now an almost irreplaceable commodity. Many manufacturers must devote their entire efforts to building military vehicles only. Others must turn from making automotive materials to producing guns, shells and other equipment needed by our armed forces. Rubber has become precious.

"These things mean that it has become the patriotic duty of every truck operator in America to help in every possible way to make his trucks and tires last longer."

How well the truckers have succeeded is shown by performance records like that of one truck on the West Coast which has traveled a million and a quarter miles and is still in good shape.

Load a Bomber Into Two Trucks

To help trucks haul bigger loads and meet some of the complicated loading problems of war time, truck manufacturers have shown great ingenuity. One example is a giant trailer truck 64 feet long. This monster is used to carry parts of Consolidated B-24 bombers from the Ford Willow Run plant to bomber assembly plants more than a thousand miles away. Two of these giant trucks can carry an entire bomber, thus freeing several freight cars.

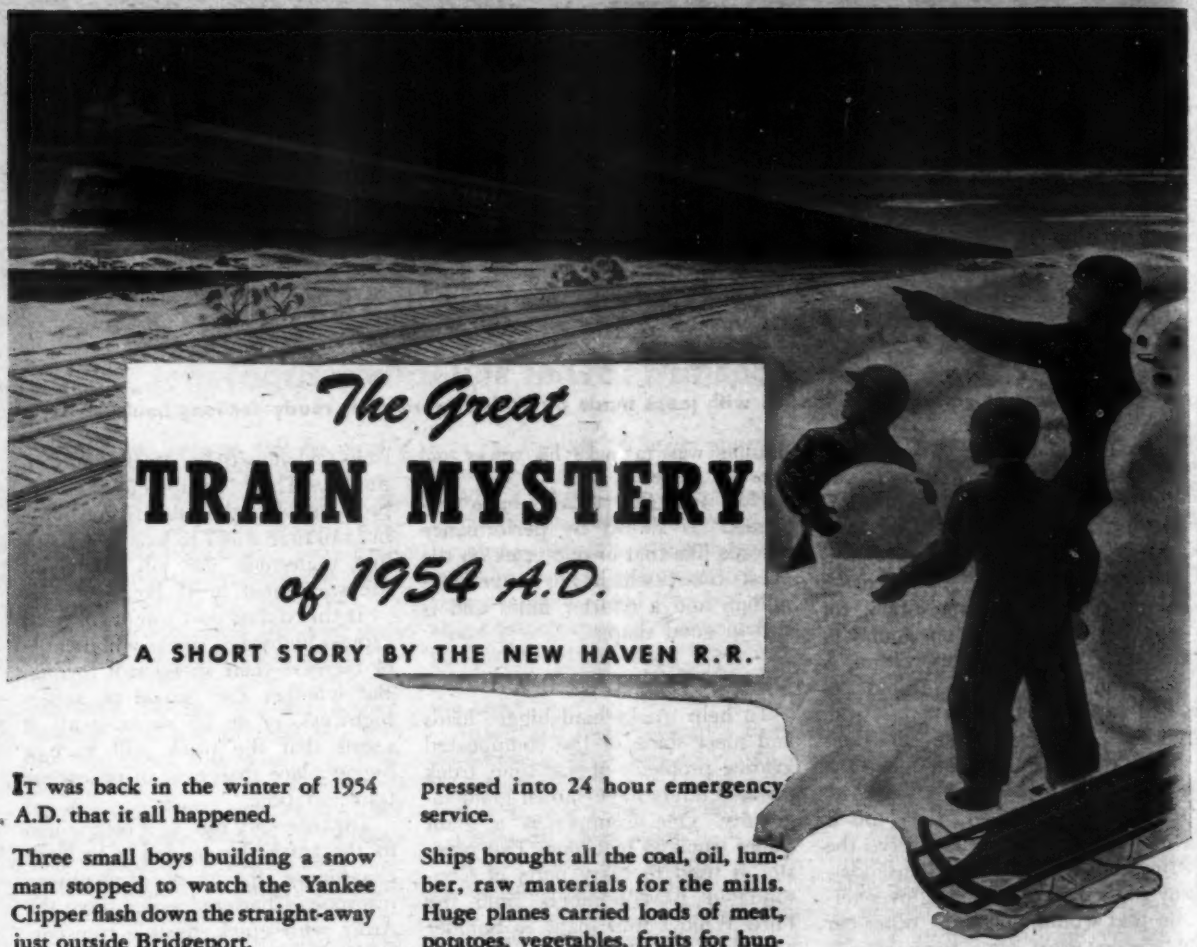
Sometimes truck lines get a rush call from the Army, which uses not only its own huge truck fleets, but makes considerable use of the established truck lines. In one case soldiers were going via train 1,300 miles from Oklahoma City to Blythe, California. Their equipment had to be there when the soldiers got there, but rail time was 7 to 8 days. A truck line undertook the job, delivered the equipment in 41 hours.

In the coming post-war era of great express highways, trucks will be able to increase their speed still further. But whether they travel on superhighways, or on no roads at all, it seems that the truck will have a bigger place than ever in peacetime transportation.

The inter-city bus, as a companion to the truck, has added a brilliant chapter to the story of highway transport. Chartered buses serve the Army with quick, flexible transportation, bringing troops directly into camps or military destinations. Buses transport workers to remote war construction jobs. They continue their task of transporting the essential passengers, providing the only public transit service to thousands of American communities. The growing size of highway "luxury-liners" has given increased carrying capacity.

Commercial Carriers

Trailer, made entirely of wood and non-priority materials, was devised for special job. It is used to haul bodies of U. S. Army ambulances.



The Great TRAIN MYSTERY of 1954 A.D.

A SHORT STORY BY THE NEW HAVEN R.R.

It was back in the winter of 1954 A.D. that it all happened.

Three small boys building a snow man stopped to watch the Yankee Clipper flash down the straight-away just outside Bridgeport.

Suddenly, without a sound, the speeding Clipper vanished—train, crew, passengers and all—into thin air.

But that was just the beginning.

Soon the wires began to buzz in Boston, New York, Washington, San Francisco.

Over the air—in the papers—in the streets—the amazing news came out. Every train, everywhere, was gone—with the wind!

Some phenomenon of nature, people guessed . . . and trembled. A few wise old scientists, wagged their heads knowingly—but kept silent. Even the most brilliant young minds of the day couldn't solve the mystery.

Days passed . . . but the trains didn't return. Fear gripped the hearts of people.

By order of the President, everything left that could roll or fly was pressed into 24 hour emergency service.

Ships brought all the coal, oil, lumber, raw materials for the mills. Huge planes carried loads of meat, potatoes, vegetables, fruits for hungry people.

Trucks heroically strove to deliver the goods from seaport to inland factories—from airports to market places.

But docks and ports piled up. Highways became jammed. At best, deliveries were only a trickle.

Prices soared to the sky. Oranges, for example, suddenly cost $4.00 a dozen. Most things, you couldn't buy at any price.

The job simply couldn't be done—not for less than 50¢ to $3.00 per ton mile as compared with $.009 per ton mile by train.

Hampered by lack of raw materials and fuel, great industries shut down.

Headlines screamed PANIC!

It might have been the end of things as we know them—the end of industry, and progress and modern civilization.

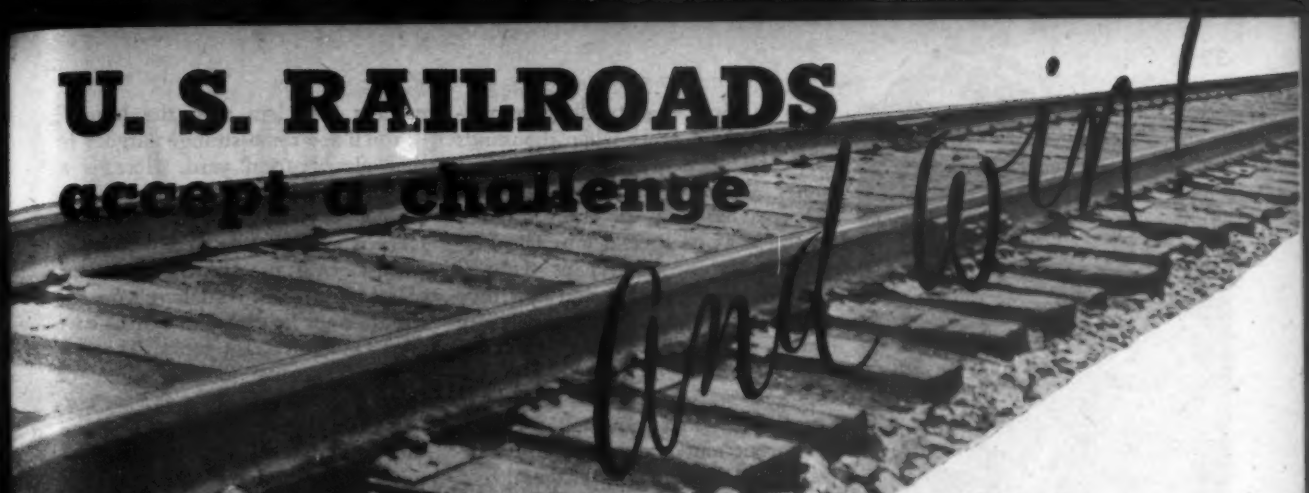
It certainly would have been, had not Nature, of her wisdom, finally seen fit to press the button that brought the trains from nowhere back to earth again.

• • •

The mysterious panic of 1954 will not happen then—or ever, of course! The simple purpose of this story is to bring it home that trains perform a task that no other form of transportation can possibly do so cheaply, or so dependably—and that trains *have* a place both now—and in the scheme of things to come.

THE LIFELINE OF NEW ENGLAND

U. S. RAILROADS
accept a challenge



"THE [illegible] are bombing Pearl [illegible]"

[illegible] the men racing to [illegible] War Department as that fateful news flashed in [illegible] December 7, 1941, was one man who knew that the railroads faced the greatest challenge in all their history. The man was, strangely enough, a civilian. His [illegible] Gass, and he [illegible] few people know [illegible] a job of vast importance [illegible] transportation. He is head [illegible] Military Transportation Section [illegible] division of the Association of American Railroads. Actually, it may be thought of as part of the War Department itself.

There were sleepless nights ahead in the MTS. For four days the director worked continuously, rushing out the order to railroads all over the nation. Collect all usable cars! Clear tracks! Prepare for huge troop movements! America was going to war, and the railroads had a moving job to do.

What a job! Already the railroads of the nation were carrying thousands of troops, tons of lend-lease equipment. Now the whole tempo was speeded up—the job was vastly bigger. World War I with its transportation problems looked insignificant by comparison. Upon the railroads fell the responsibility of moving not only troops, but all the materials for army and navy bases, for the expanding arsenals, for shipyards and steel mills and aircraft factories—raw materials flowing in, finished equipment pouring out.

To the Office of Civilian Defense went the great task of regulating the multiple activities of the railroads. It was a coordination problem that called for all the skill of the OCD's railroad experts. Sensible "rules of the game" had to be worked out to [illegible] than [illegible] the railroads in [illegible] job ahead.

[illegible] Million I[illegible] for a moment at the job of [illegible] troops. During the twelve [illegible] following December 7, 1941, the Railroads handled in organized [illegible]ents more than 11,000,000 members of our armed forces—more than three times as many as were carried during America's first year in World War I. This figure does not include other millions of soldiers, sailors and marines who traveled as individuals on leave. The rate of movement has been stepped up until now nearly 1,750,000 fighting men are traveling monthly on the railroads in organized parties.

And look at the equipment. To move a triangular infantry division (three regiments) of approximately 15,000 men and their equipment involves the operation of 65 trains consisting on the average of 21 cars each, or a total of 1,350 cars. If the movement is for any great distance, the service of scores of locomotives will be required en route. An armored division, which includes about 3,000 vehicles and other mobile units, requires 75 trains ranging from 28 to 45 cars each. On peak days of military travel, as many as 3,300 Pullmans have been set aside for troop transport.

How does all this troop movement start? The plans come from the General Staff of the Army. When it wants a certain division moved, an order is sent to the Army's Services of Supply. It is then turned over to the Traffic Control Section of the Army Transportation Corps for advance planning. The rail transportation officer of the division breaks the movement down into cars and trains and determines when the men and their equipment will be ready to leave, their starting points and their destinations. This information is then passed along to the Association of American Railroads, which then makes arrangements with each railroad involved. The whole process is a miracle of coordination.

Mountains of Freight

If the railroads had to concern themselves only with moving troops, great though this task is, they would have a comparatively easy time. But there are all the other non-human cargoes that somehow must get through. There are such cargoes as the 28,000,000 bushels of corn which the Government suddenly ordered shipped by rail—a little matter of 15,500 freight cars. There is the daily job of hauling 1,600,000 tons of coal; 6,000 carloads of freight to the more than 150 widely scattered Government camps; 33,000,000 gallons of oil; hundreds of carloads of food for the Army and Navy. And this is not just *some* days, but *every* day of the week.

A big job? It would be hard to think of a bigger one. Many people did not think that the railroads could do it. What did they have to meet this mighty challenge? There is good reason why that question should be asked.

"By the time the war started in 1939," says Joseph B. Eastman, Director of Defense Transportation, "the railroads were carrying only about one-third as many passengers annually as in the peak year of 1920, although they were carrying them farther, so that the figure for passenger-mile (passengers carried one mile) was approximately one-half that for 1920. Motor buses had already taken the place of the old local train . . .

"The drastic reduction in rail passenger traffic had naturally been accompanied by the retirement from service

Pullman Co.

Uncle Sam's fighting men travel by Pullman. Alert, clean, relaxed, they snap to at a new post ready to go.

of large numbers of passenger locomotives and coaches. By 1941, when passenger traffic was beginning to show signs of real revival, the carriers had only half as many passenger locomotives as in 1920 and only two-thirds the number of passenger carrying cars."

Improved Equipment

The railroads were *better*. Between 1923 and 1942 they spent ten billion dollars on new equipment. The money went into new and improved locomotives, heavier rails, stronger tracks, bigger repair shops, better freight cars. Big and tough is the way to describe those new locomotives. Since 1918 the power of the average steam locomotive has been increased about 50 per cent.

Better equipment was just one of the reasons the railroads could win the fight. Another secret was *organization*. Besides the tremendously efficient organizations of each railroad, the Association of American Railroads had set up five important services. The Car Service Division has the job of routing freight cars throughout the country. "Keep 'em moving" is the constant watchword of the expert traffic men who tell the railroads what, where, and when in freight cars.

The Military Transportation Section has its big job in transporting the Army and its supplies. The Port Traffic Section keeps constant track of all cars moving to and from seaports. It sees to it that cars are delivered, unloaded, returned promptly. They help to avoid the appalling complications which arose when thousands of cars piled up at embarkation ports in World War I. The Tank Car Section has the oil transportation problem as its special job. The Passenger Car Section keeps its eyes on the passenger cars, and how they are used in both military and civilian transportation. Put these five sections together, and you have one of the big reasons why the railroads have successfully met war challenges.

Throughout the nation are scattered 530 Car Efficiency Committees, composed of members of Regional Shipping Advisory Boards. They are minute men of transportation who have helped to unsnarl many difficult situations. A manufacturer answers his telephone. "This is Bill Jones of the Car Efficiency Committee," he hears. "I hear you have eight freight cars still on your siding. Been there three days. How about doing something about it?" The manufacturer gets the cars unloaded.

War's Strange Cargoes

Railroading has always been exciting. Who hasn't been thrilled by the sight of a thundering "iron horse" or a glittering modern streamliner? Now activity on the railroads has become more fascinating than ever. Visit the classification yards of a modern railroad where the railroaders "put 'em over the hump."

You'll see some strange cargoes in that classification yard. Here is a special 24-wheel flat car which cradles a giant coast defense gun. Here is a flat car loaded with awkward-looking prefabricated sections of steamer hulls. And here you see car after car loaded with canvas covered General Grant tanks. There is a grim, war-like look to many of these cargoes bound for the far corners of this battle-torn earth. But the ordinary freight cars—the thousands upon thousands of them, contain cargoes just as vital.

Don't think that a freight car is just a freight car. They're each made to do a particular job. Hopper cars with watertight hatches protect cement. Army tanks and bomber wings are loaded through special end-loading boxcars. There are more than 100 different kinds of tank-cars.

When the freight trains are rolling down the rails they move with new speed and safety, thanks to modern improvements. In some cases, two tracks have been turned into the equivalent of four by the installation of special signals permitting an eastbound train to race forward on what is normally the westbound track.

Thus the mighty challenge has been met. The iron horse has proved itself to be a fighting charger.

U. S. Army Signal Corps

Trainmen, brakemen, engineers work all night on a siding. Next morning a line of tanks a mile long rides the rails to fighting fronts.

SKY TRANSPORT GIRDLES the GLOBE

"YOU'RE going to Africa. Can you leave in two hours?"

The tank expert in a middle western factory wasn't surprised. He had seen too many tank parts rushed out of the factory into waiting planes that would soon be winging their way toward the desert battlefronts in Libya where the British 8th Army was driving back Rommel. They had a problem off there in Africa—a lubrication problem that only this expert could solve. A few hours later he was in a plane headed for the South Atlantic. A matter of hours after that he was crouching beside battle-scarred American tanks in Libya. It took only half an hour's examination to tell him what was wrong.

"We'll make the new parts that'll stop this," he announced. An hour later he was again in the air, and in a few days the tank factory was actually making the new parts.

That is the Air Transport Command in action.

In Alaska, an Army hospital burned to the ground. There had to be a new one—and fast. That job went to the Contract Air Cargo Division of the Army Air Forces. All airlines pooled their resources. Within 48 hours, a complete 35-bed hospital, with all equipment and medicines, had been delivered in Alaska.

Pan American Airways

"Somewhere in Africa" a flying boat circles to a landing, gets refueled, takes off again.

The airlines of the United States, which in the past ten years had mapped out a network of air routes across the North American continent and were pioneering the transoceanic routes, have now laid out the global routes that provide the swift transport needed in this war. Weeks have been cut to hours, hours to minutes. Believe it or not, it takes only 400 minutes to span the Atlantic! Figures that challenge the imagination and foreshadow a new kind of peacetime world—a world in which 60 air hours will take you from any spot on the globe to any other spot!

In this war, the airplane has become a jack-of-all transport. The huge task is highly organized, with definite branches to do definite jobs. The Air Transport Command, established only last July, has wide and varied duties. It is delivering warplanes to worldwide fighting fronts, transporting personnel, cargo, and mail for the War Department, operating all Army air routes beyond our borders, supervising all civil airline operations except those under jurisdiction of the Navy.

The ATC utilizes the regular facilities of the U. S. private airlines on a contract basis. The Navy has its own Naval Air Transport Service, a huge wartime operation that covers 40,000 route miles to the farthest corners of the world.

Pioneering Global Airports

Part of the real drama of air transport is the laying out of the route, a ground job that's as tough as they come. To have an air route, you need ground facilities and they have to be carved out of the wild places of the earth. Typical is the chain of airports slashed out of the African jungles. A route was charted on a map, then over it flew the airline boss of the project and an Army major. This survey gave them an estimate on the amount of equipment needed. Then twelve hundred picked men were recruited in the United States, given shots for typhoid, yellow fever, tetanus and cholera and rushed to Africa.

They found themselves in the midst of a jungle filled with hidden menace. Malaria struck down 30 per cent of them before 44-ton fabricated houses with air conditioning equipment and perfect screening could be flown in. Airline doctors poured oil on the swamps, had sewers dug, got the men to wear long-sleeved and long-legged clothing at night. Down went the malaria rate to 1 per cent. But there were other discomforts. Scorpions, snakes, flies, termites, mosquitoes, steaming dampness of fetid jungles. Many of the materials for building the airports had to be carried on the heads of

native bearers threading their way through narrow jungle trails. Armed airline men had to stand guard to prevent the materials from simply disappearing into the green jungle depths.

Somehow, the Diesel engines, the scrapers, the drums of oil necessary to the building of a jungle airport were delivered to the spots picked for the landing fields. Natives sometimes laid down their tools to fight each other with long knives. Every day was a struggle.

That is a drama that in one form or another had been enacted wherever men have set out to create the needed landing places where cargo planes, fighters and bombers can set their wheels.

The ATC Takes Hold

Major General Harold L. George, commanding the ATC, has handed to America's civilian airlines the biggest and toughest air transport job in history. That job is to fly every plane that comes off the production lines under contract to the Army. That will include some 60,000 planes this year, some 125,000 next. This means finding the pilots, the navigators, the radiomen and all other personnel necessary to take over the new planes, and manage the flights once the crew has been found.

Back in 1941, President Roosevelt made the Air Corps responsible for delivering planes to the British. It created the Ferrying Command. The organization grew swiftly. After Japan attacked Pearl Harbor, the duties of the Ferrying Command were multiplied. A new transportation system on a world scale was demanded. Mail, men and supplies had to be transported—and transported *fast*. That meant travel by air.

On July 1, 1942 the Ferrying Command became the ATC, taking under its wing the Air Division of the Transportation Service, Service of Supply, and the Contract Air Cargo Division of the Air Service Command.

Since then the ATC has done a dramatic and heart stirring job. When only 29 cargo planes were operating in the contract cargo setup, those 29 cargo planes, in one week, carried 899,000 pounds of supplies 287,000 air miles and transported 607 members of military personnel.

Strange are the cargoes of the Naval Air Transport Command. Balsa wood from Central America, needed to make mosquito boats and gliders; tons of rubber seeds from Liberia for planting in South America; blood plasma carried to New Guinea in three or four days from the mainland.

A battle-damaged submarine wired for repair parts. Ten thousand miles away mechanics worked on the material for 30 straight hours. A police escort rushed the shipment to an airport. Three days later NATC delivered the parts to a submarine which, by surface supply, would have been out of commission for a month.

NATC pilots covered more than 30,000 miles every day, across arid deserts, arctic wastes and lonely seas, operating on a tight time schedule as accurate as the best-run domestic line—and that's plenty good. In fact, NATC, like ATC, borrowed much of its personnel and operating procedure from the airlines.

The Airlines Cooperate

One of the biggest transportation stories of the war is the work of the Contract Air Cargo Division of the Air Service Command. This is really just another name for the airlines themselves. By July of last year the number of planes plying world routes in this service had grown to over a hundred. Every one of those ships flies a full load seven days a week, with desperately needed cargo. In a single week millions of pounds of supplies thus move by air.

Maintain Regular Service

The amazing thing is that in spite of the many duties the airlines undertook for the armed services, they managed to maintain their regular operations and serve thousands of passengers, mostly those bound on missions connected with the war effort. With only half their original planes in action, the airlines showed 41.4% more passenger miles in 1942 than in 1941. Express pound miles jumped 120.6%.

The Army has not absorbed the airlines—it is merely using them—and the airlines are cooperating to their fullest extent. General George has said of the American airlines: "The genius of organization and operation which has *made* the airlines of the United States will help us to solve this present transportation problem."

Official Photograph, U. S. Army Air Forces

Many a wounded fighting man has lived to fight another day thanks to Red Cross blood plasma that was flown out to far-flung battlefronts.

WE SUBMIT THIS CONCEPTION OF OUR CHANGED WORLD AS THE BASIS FOR OUR

WAR-THINKING

We exist upon one globe, and inside another globe.

Our planet-earth is the center of a larger air-globe . . . It is like a small spherical kernel within a large spherical shell. Both globes, as one unit, follow the same orbit. We take our air with us—and always have.

The new factor that changes our world is the *use* of air as the only *universal* realm for transportation. In ratio as we *do* use it, we change the proximity and accessibility of all places, and effectively we make the world smaller.

* * *

With this conception as the basis for our war-thinking the world *could* make Peace permanent.

Not that human nature will change that much, that quickly, but because, after centuries of recurring wars, the human race now does possess the physical means of *enforcing* Peace.

* * *

Consider the *protective* possibilities of air:

Since air is *everywhere*, it is not possible for any person, clique or nation to hide anywhere upon the earth from air surveillance. If we have mastery of the air, we can reach the spawning grounds of the war plotters and prevent their preparations for war.

Consider the *productive* possibilities of air:

Today, *all* world markets are much *closer* neighbors than cities of the United States used to be. Air transportation makes possible a quicker post-war rehabilitation and a better world economic system.

* * *

World War I was a localized war. It was won by *surface* strategy. World War II is a *universal* war where there are no safety zones, because every inch of the earth's surface is a potential target for bombs from the air.

* * *

The world geography of 1918 is as obsolete as that of the ancient flat-world. That is why the post-war world will present problems as great as does this war-world —and why we will need aviation more *after* this war than during it.

After the Peace Conference we will have a much more *vulnerable* nation, because it is no longer an isolated piece-of-land, but an integral, inseparable and indivisible part of today's air-world. The *waters* of our two oceans could no more prevent air attack than did the *cement* of the Maginot Line.

* * *

The pre-air conception of the world was one of nations protected by vast oceans. All world economic, political and military thinking was predicated upon that surface-conception. Aviation has turned the page on that era!

Of course nations will continue to have boundary lines and will use land and water methods of transportation. But aviation changes all relative values; it nullifies the buffer nations, and makes possible that which has, for all man's prior history, been impossible.

* * *

Since it is primarily the use of *air* that makes this a Global War, it must follow inevitably that a *dominant* use of air can maintain Global Peace.

* * *

The United States has the beginning of the aviation machinery necessary to implement its democratic ideals and prevent a repetition of the war-crime by any nation.

Attain the most powerful position in the air and automatically we will become the greatest Power for Peace.

A. N. KEMP
President, **AMERICAN AIRLINES, Inc.**

St. Louis—San Francisco-Ry.

THEY MOVE THE ARMY

Military Miracle Men—The Army Transportation Corps

A SOLDIER curled in his foxhole on some South Pacific island cannot fight long if his stomach is empty. The Marine on the island next to him cannot hold out if the ammunition he must have is still on the high seas. The General in Africa cannot be expected to win his campaign if his transport of troops does not arrive.

In this war, the details of transporting troops and supplies smoothly and quickly to the land fronts fall on the shoulders of one great organization, the Transportation Corps of the U. S. Army. It is the mission of the Corps to "direct, supervise, and coordinate all transportation functions of the War Department, and operate the field installations pertaining thereto." And that's a big job!

Millions of troops in our training camps, and millions of tons of military supplies in our factories, do not in the least awe the Axis. These troops and these supplies must be placed in the combat zones to be effective.

The Transportation Corps has not yet seen its first birthday, but it's mighty big for its age. Under the Chief of Transportation are the Deputy Chief and three Assistant Chiefs of Transportation who head the divisions of Operations, Personnel and Training, and Supply. And under these Assistant Chiefs again come further divisions and breakdowns.

The Water Division, for example, has the large task of supervising the maintenance and operation of the Army Transport Service as well as taking care of the shore establishments necessary to the management of this huge fleet. The Traffic Division directs *all* Army personnel and freight transported in the United States and Canada, except when air transport is used. The Production Division inspects the quality of procured items, takes steps to speed their manufacture, and arranges for the distribution of materials for the corps.

The Planning Division studies the performance capabilities of ships, prepares forecasts of transportation requirements, presents detailed estimates and specifications for movements. After that, the Movements Division coordinates and expedites the transportation of overseas forces and their supplies both by land and water, and makes long-range plans with the Navy in regard to convoys. And these are only a *few* of the hundreds of problems that the TC must solve.

The biggest task of the Transportation Corps is to bring about a complete coordination of the various transportation services which it uses. Deliveries to our troops must be made, and made on time. The movements of troops, of supplies, of convoys, of transports, of ships must be as carefully synchronized as the workings of a clock.

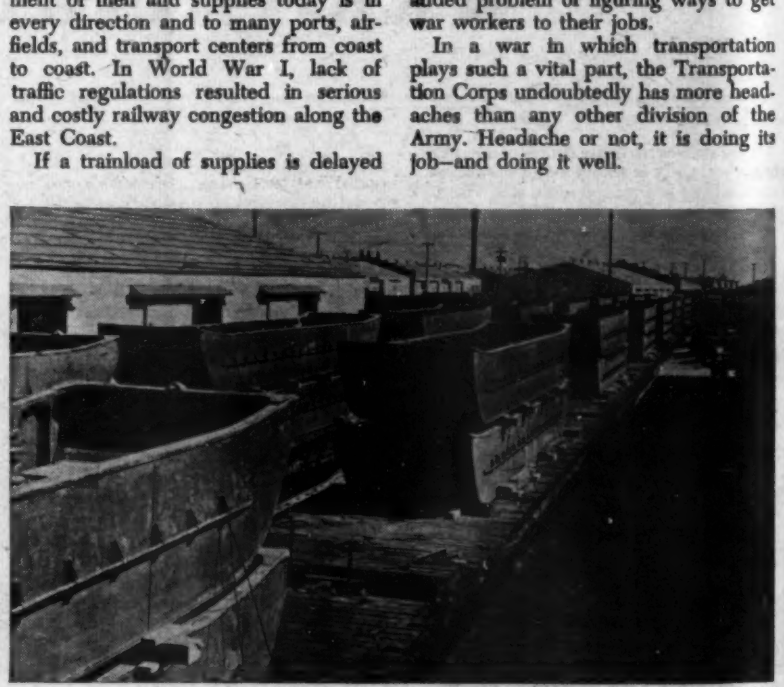
In contrast to World War I the movement of men and supplies today is in every direction and to many ports, airfields, and transport centers from coast to coast. In World War I, lack of traffic regulations resulted in serious and costly railway congestion along the East Coast.

If a trainload of supplies is delayed and does not reach port by the time the ship is ready for loading, the precious time of the ship, and perhaps of an entire convoy is lost. On the other hand, if freight keeps rolling into port and ships do not appear to load it, the marine and railway terminals become congested. It is such things as these that the Transportation Corps has to guard against.

If a shipload of troops is expected to land on hostile shores and plunge immediately into action, "combat loading" is necessary. This means that the supplies and equipment are stowed in such a manner that they can be unloaded swiftly and in the order in which they will be needed.

The Transportation Corps is a glutton for work, for in addition to all its military duties, it has taken on the added problem of figuring ways to get war workers to their jobs.

In a war in which transportation plays such a vital part, the Transportation Corps undoubtedly has more headaches than any other division of the Army. Headache or not, it is doing its job—and doing it well.



Charles Phelps Cushing

Moving landing barges, troops, convoys—it's all in the day's work for the Transport Command. On their job may depend success of a campaign.

war workers must reach their jobs

"IF IT hauled automobiles, it can haul passengers."

The manager of a war factory in Detroit had an idea. He figured that the big trailers once used to carry shiny new automobiles could be turned into buses to get people to work. Like hundreds of other manufacturers in the past year or two, this one discovered that it was not enough to have a factory and the raw materials to make the war goods. Somehow you have to carry workers to and from the plant. In this case, the automobile trailers did prove to be a solution. With improvised bodies they became buses.

How *do* workers get to work? Most of them by their own passenger cars—cars which must run on precious rubber. Some by street car, in the few American cities which still have this form of transit. Many by bus. In a few cases, by train.

Local transportation may seem like a small part of the big job of global transportation. Actually, it is one of the most vital links, and one of the greatest problems. Bus line and trolley operators are faced with unprecedented demands on their equipment, at a time when they cannot get much new equipment, and are desperately short of the skilled labor required in the operation of a transit system. Last September bus operators said they needed no less than 33,500 new buses. They could not get them. Passengers carried had jumped to 22 billion by December, 1942, as compared with 17 billion for 1941. In 1943 that number may go up over 25 billion.

Getting the workers to the plants is a challenge that the bus operators have accepted. Everybody agrees that they've done a good job under serious handicaps. They have found various ingenious solutions to the problem of making less equipment haul more people. One of them is the "standsit" seat. On them passengers half stand-up, half sit, but find themselves fairly comfortable. Such seats can be spaced as much as 14 inches closer together than regular seats.

In Cleveland, the transit system tried hitching trailers to regular buses. The scheme added 31 passengers to a single load. Retail stores and industrial plants have cooperated by staggering their hours. To avoid the terrific peak loads, different plants start and end work at different hours. This system has helped, if not solved, the transportation problem in Washington, D. C.

Passengers don't like it very well, but a system that helps to reduce wear and tear on buses, and speeds schedules so that each bus can get around its route more often, is to cut down the number of stops. In Indianapolis the number of stops was cut 40 per cent. In New York, buses which formerly stopped every two blocks, now stop every four.

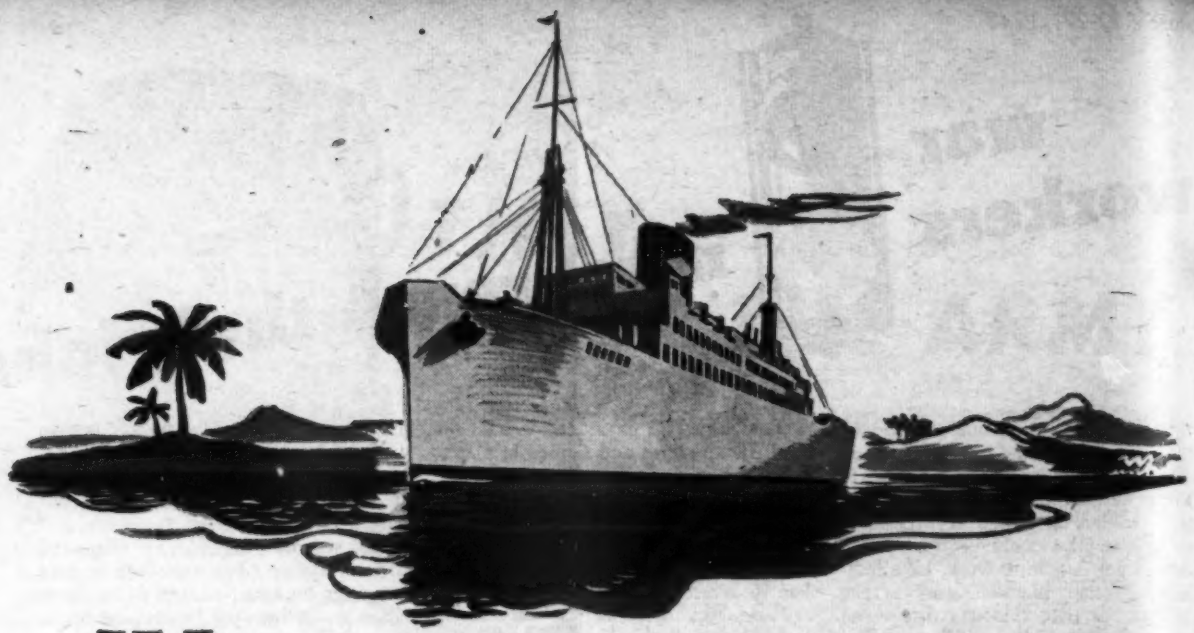
The ODT took control of all buses still in the hands of manufacturers. When a new war plant goes up, and a local bus line can present a good case, it may get one of these new buses that are known as "trouble shooters." They are the shock troops of local transportation. In some communities, ways have been found to widen the use of school buses for transport of other workers. School buses, incidentally, carry 1,388,800,000 passengers a year.

The housing problem ties in closely with the local transportation problem. Since there is not enough housing near the large new industrial war plants, it is necessary for many workers to travel long distances. In some cases, workers have been traveling as much as 75 miles each way to get to work. One worker in a shipyard found it necessary to leave home every morning at 3:30 A. M., drive his car 4 miles to the railroad station, take a train 50 miles, and a bus for the remaining 5. He spent nearly four hours each day getting to and from work. And there are thousands like him.

The backbone of local transportation is still the private passenger automobile. Two thousand three hundred towns and cities, with a population of 12⅞ million, depend *entirely* upon automobiles for transportation. Essential passenger mileage of private automobiles is estimated to be three times as great as the passenger mileage of all other forms of public carriers combined! Three fourths of all war production workers depend entirely on their automobiles to get them to work. And this at a time when rubber is one of our most vital commodities.

No wonder the U. S. Office of Civilian Defense has sponsored a great campaign to make this form of transportation go farther—the "Share and Spare Your Car" campaign. Crying as is the necessity to save rubber, with 90 per cent of the world's supply in the hands of the Japanese, there is the added need of saving all parts of the automobile. After the present supply is gone there will be no more differentials, axles, or spark plugs for the duration.

"Car conservation" has done wonders. When five motorists share rides, alternating from car to car, that means just one-fifth as much wear on each automobile. Industries themselves have been active in organizing car-sharing pools.



When ships can be spared...

FOR more than forty years, ships of the Great White Fleet have played a vital part in the development of trade and commerce between the United States and our Good Neighbors, the Republics of Middle America.

Thousands of men and women sailing on these American flag liners have built good will within these countries.

Below decks these ships have moved the cargoes that have been the very lifeblood of Inter-American economic health and growth... Northbound with bananas, coffee, cocoa beans, pineapples and other important Middle American exports... Southbound with farm and factory machinery, cars, radios, and other products so necessary to Middle America's progress and prosperity.

Today, this traffic is greatly changed. The United States and Middle America are *fighting side by side* in a war that *must be won* no matter how great the sacrifices or how difficult the disruption of peacetime patterns. With Inter-American shipping, for example, men and materials vital to the actual war effort must be moved first.

Many wartime essentials, formerly imported almost exclusively from the Pacific Tropics, are now being grown and shipped from Middle America... rubber, abaca or manila hemp, cinchona for quinine, palm oil, rotenone and others... while hides, minerals and essential tropical woods such as balsa and mahogany have taken on new importance as Middle American exports.

But when ships can be spared, after Victory or perhaps before, those great food surpluses of Middle America—especially bananas — will again come into their own... helping to feed a hungry, war-ravaged world....

★ ★ ★

Today, as always, the Great White Fleet is proud to be serving the Americas... proud to be wearing wartime grey as it carries out government orders necessary for Victory and the protection of the entire Western Hemisphere. Tomorrow, it will be ready to resume its place in the trade and travel between the United States and Middle America.

Great White Fleet

UNITED FRUIT COMPANY

Buy War Bonds and Stamps regularly and budget for that "trip to come."

GUATEMALA ★ EL SALVADOR ★ HONDURAS ★ NICARAGUA ★ COSTA RICA ★ PANAMA ★ COLOMBIA ★ CUBA ★ JAMAICA, B. W. I.

INLAND WATERWAYS

Not as slow as you think

"WE'VE got to get through!" There was a look of determination on the grizzled face of the old sea captain as he gave his men their orders.

Down the blue and sometimes storm-lashed waters of the Great Lakes move the red cargoes of iron ore from the Mesabi and Marquette ranges, destined for the great blast furnaces of Gary, Youngstown, and Pittsburgh. Through the locks of the Sault Ste. Marie, 100 million tons of ore will move in 1943. Through these same locks go other cargoes—among them tremendous loads of wheat to provide food for the United Nations. Some wheat ships carry over 500,000 bushels, which is equivalent to the load of a freight train of over 200 cars.

The citizens of Duluth, on the tip of Lake Superior, speak in terms of millions of tons, miles of ore trains, hundreds of ore trucks and steam shovels. They are proud of their production and shipping rates. And they have a right to be!

The Ore Goes Through

The six fields of iron in the hills around Lake Superior yield 83 per cent of the country's iron. Last year that 83 per cent amounted to 90,000,000 tons! It is loaded and shipped from Duluth's docks in a veritable parade of freighters. Twenty-four hours a day, through ice jams and blizzards, the ore keeps moving. From December to late in March the lakes fill with ice and boats stop. This winter, ice-breakers plowed their way through the jams to lengthen the shipping season.

The greatest artery of inland transportation is still the mighty Mississippi. In the flourishing days of the old paddle-wheelers, the river carried only a small fraction of the tonnage being carried in this year of 1943.

Steel is carried from Chicago to New Orleans by barge. Coffee is shipped by water from New Orleans to Memphis. Sugar is shipped from New Orleans to Bermingport. Oil to serve the needs of the Middle West moves along the intracoastal canal from Texas to Louisiana, then up the Mississippi and Ohio.

Time has become the most important element of transportation. To ship freight by our inland waterways is not so slow as you may think. It is estimated that a carload of flour can leave M[illegible] at seven in the evening and [illegible] York the morning of the fou[illegible] railroad, it would take until [illegible]ght of the fourth day, the ro[illegible]nger and many hours being l[illegible] busy Chicago freight yards.

A Missis[illegible] barge has an amazing capacity. A single tow of six barges may carry 12,000 tons of mixed cargo. That equals the load that can be carried by 241 freight cars, or 24 times the capacity of the old-time packet steamboat. One tow of barges has moved as many as 26,000 tons of coal.

In the early days of the United States, before the railroads, the waterways afforded the principal means for the long-distance movement of heavy commodities. In every war in which we have had a part, our network of inland waterways has played a vital role. In the Civil War, military strategy was based in a large measure upon control of the Ohio, the Mississippi, the Tennessee, and other rivers. When our transportation system broke down during World War I, we again turned to the rivers for help, and every piece of floating equipment was put into use to relieve the congestion.

[illegible]nd [illegible]n, during World War I[illegible] wit[illegible]ed burden placed upon o[illegible]r [illegible], and the need for coordi[illegible] [illegible]portation of supplies neces[illegible]y for war, the Great Lakes and the Mississippi and its tributaries which directly serve the river ports of 17 states, are being used in full cooperation with truck and rail services.

The rivers and lakes themselves may remain the same, but transportation on them has improved and progressed as has any other form of transportation. River channels have been improved for navigation and the 9-foot channel has become standardized.

The expansion of water transportation in wartime is not to be wondered at. Of all forms of transport it is capable of the greatest expansion with the least cost in material.

Waterways are also the least vulnerable to attack of all forms of transportation. If we ever were attacked by the Axis on our own shores, it is likely that rail lines and terminals would be destroyed, but all the bombs in the world could not blow up a river! Even if the enemy succeeded in crossing the thousand miles of land he would have to cover to reach the Mississippi, he could not destroy enough locks and dams to fatally cripple traffic on the rivers.

Charles Phelps Cushing

Scrap for the bellies of blast furnaces arrives at Cleveland steel mills from Detroit auto plants. Boats return to Detroit with steel.

FIGHTING FUEL

Through pipelines and tank cars flows lifeblood of modern war

CLOUDS of black smoke roll ominously skyward—smoke shot with angry red flames. Burning oil! Another tanker torpedoed! Another tanker sunk, its precious cargo never to reach its destination.

In time of war, oil becomes the lifeblood of the nation. Its smooth, slippery blackness packs power in every ounce. Fuel for our bombers, our fighters, our tanks. Fuel, fuel, we need more fuel! Our fighting men cry for it, and we answer—another tanker leaves the docks. Perhaps it will reach them. Perhaps it will not.

It is hard to say, in time of war, just what our most difficult problem is, but surely the problem of getting oil from flowing well to fighting front hits pretty close to being *it*.

The United States has a production capacity of 63 per cent of the oil of the entire world, and yet the United Nations could starve for oil in the midst of plenty if we failed to transport it safely and quickly.

And all the while our fighting forces are demanding fuel, the people at home must go on living too. Homes must be heated, factories must be kept running, and local transportation cannot entirely stop.

The homely, low-slung tanker is just one of the means of transporting oil, for before the fuel can get to the tanker, it must usually be transported over miles of land by tank car, truck, or pipe-line.

The Atlantic Seaboard states are supplied with oil and gasoline largely from Texas, Louisiana, Arkansas, Oklahoma and other Southwestern states. In 1940, the American railroads were hauling only 4,000 or 5,000 barrels of oil a day from the oil fields to the East Coast. Pipelines carried 95 per cent of the oil for the East to the Gulf ports, where it was loaded onto tankers and carried around Florida to Atlantic ports.

Came December 7, 1941! Although many of our tankers had been carrying oil to our allies before our entrance into the war, those that had been hugging our coastline now began shooting out across the Atlantic in ever-increasing numbers. The East's tanker supplies were almost entirely cut off, and the railroads were left to do the job alone.

From a mere trickle of oil in the summer of 1941, the railroads increased their transportation capacity to 64,000 barrels a day! A month later that figure jumped to 222,000 barrels!

Then came the German U-boat menace. Tankers were being sunk and oil lost. Every time a tanker went down it meant that the railroads would have to move greater amounts of oil to the coast. The oil companies and the railroads went into high gear. The railroads are now hauling over 800,000 barrels every day from the oil fields of the West and Mid-West to the East! Trucks, too, have played an admirable part in this great transportation problem.

Recently a new pipeline with the largest carrying capacity in the world was completed between Texas and Norris City, Illinois. This 24-inch, 530-mile pipe line has been affectionately nicknamed "Big Inch" by the men who built it. It will pour oil into Norris City at the rate of 9,000,000 barrels a month. This pipeline will gradually be extended as far as the Atlantic seaboard, to relieve the East of its dependence on trucks, tank cars, and tankers.

Pipelines do not just happen. There is a fascinating story behind the construction, operation and maintenance of these modern "underground railways."

Aerial photographs, together with careful instrumental surveys, help choose the route. Often the pipeline must go through woods, marshes and mountains, and woodsmen chop their way through with the bulldozers following, tearing up trees, pushing aside boulders.

Huge machines loosen the dirt, and others follow, digging the ditches. Trucks drive along the survey stakes, and men throw off joints of pipe as they go. Welders make their way along the miles of jogging, disjointed pipe, their torches sealing the seams, making one long pipe out of many small ones. More machines follow, coating the huge pipe with protective coverings of asphalt, wrapping them around and around with asphalt-impregnated asbestos. Often in regions of highly corrosive soil they are repainted, re-wrapped and painted again. Powerful tractors lift the pipe with ease and place it in its four-foot wide, three-foot deep bed. Scrapers appear and push the dirt back over the pipe. The construction phase of the pipeline is complete. After cleaning and testing, the oil will begin its steady flow.

Caterpillar Tractor Co.

Oil for distant cities will be piped through this artery. America has 132,000 miles of pipeline.

Conductor—You see, you and your mother are making your entire trip on this Burlington Zephyr. Your trip started at Chicago a little while ago and it will end in Denver tomorrow morning. But this gentleman's trip is going to take him way beyond Denver. He's going from there to Salt Lake City—then to San Francisco and he'll end up in Los Angeles.

Jean—How do you know he's going all those places—did the man tell you?

Conductor—No, but this long ticket did. You see, it's really a lot of tickets linked together just like a chain. Each one of them belongs to a different railroad. This one I'm tearing off now is a Burlington ticket and it says "from Chicago to Denver." After he leaves Denver, he'll ride on several different railroads and as he does, each conductor will tear off his share of this long ticket.

Jean—A lot of other people on this train have long tickets, too. Are they all going where the man is?

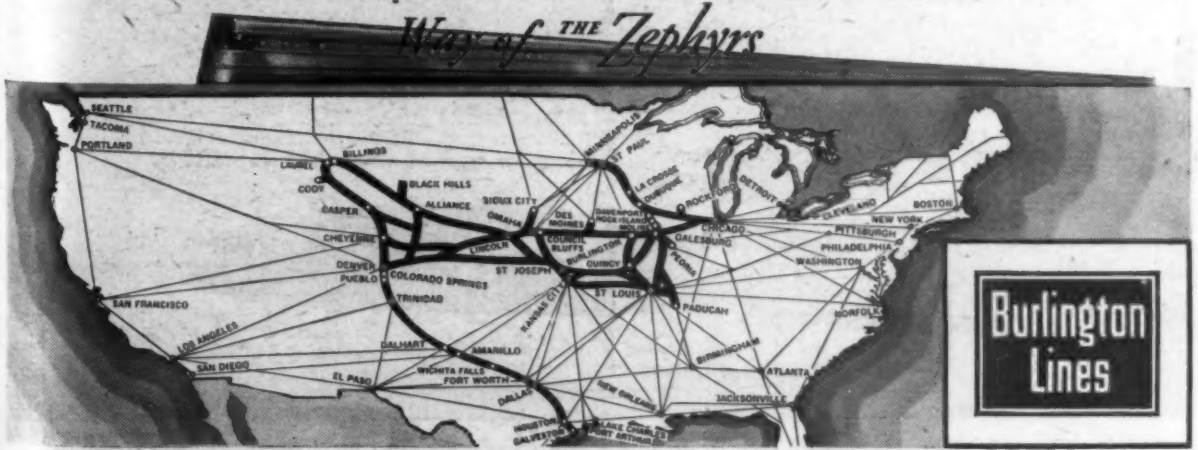
Conductor—No, if you could talk to all of them, you'd find they came to Chicago from many different places —from East, North and South. And you'd find, too, that they're headed for a lot of different places.

Jean—Then how do they all happen to be on this same Zephyr train?

Mother—Don't ask so many questions, dear.

Conductor—I'm never too busy to answer that question, young lady. It's because the Burlington is a natural link between railroads of the North, East, South and West. People just naturally find it *convenient* to use the Burlington. And, with our fleet of fine passenger trains, headed by 14 diesel-powered Zephyrs, they find it mighty *pleasant*, too. At least that's what they tell us.

Burlington's role as an essential link in border-to-border and coast-to-coast travel, has become doubly significant during these days when both war man power and materiel must be transported efficiently and speedily. We of the Burlington—more than 35,000 of us, are proud to be among the armies of railroaders who have teamed up to do the biggest transportation job, both passenger and freight, in history.



AN ESSENTIAL LINK IN TRANSCONTINENTAL TRANSPORTATION

THE MARCH OF EVENTS

Bismarck Sea Battle

General Douglas MacArthur reported two weeks ago that there was a constant and growing reinforcement in all categories of enemy strength in the island peninsula enveloping the upper half of Australia. The enemy seemed to be concentrating on this front.

Part of the "enemy strength" was a large, well-protected convoy glimpsed by reconnaissance planes through a cloud cover. Allied flyers were eager to get at this convoy. But the weather was bad and bombing was practically impossible.

What was on the Japanese mind, our commanders wondered. Were they going to try to recover lost ground in New Guinea? Were they getting ready for a smash at Australia? This particular convoy was probably headed for New Guinea. But we may never know just what it was aiming at. For the weather cleared, the bombers struck, and—there wasn't any more convoy.

The Battle of the Bismarck Sea was the greatest victory ever won by land-based planes over warships. For three days, American and other Allied planes poured everything they had on the convoy. The result: complete destruction. The Japanese lost 12 transports and the 15,000 troops on board them, 10 escorting warships (cruisers and destroyers), at least 72 planes. American losses: one bomber, three fighters.

Japanese plans were probably seriously disrupted by this disaster. But there were still many new airfields and at least seven divisions of Japanese troops in this island area.

Red Push in Center

Fighting follows the spring thaw northward along the Russian battleline. The Soviet armies in the south had been slowed by spring mud and stiffened Nazi resistance. But a new Red drive began on the central front.

The Russians hadn't forgotten that the Nazi lines were still only 125 miles from Moscow. The new drive aimed to eliminate this threat to the capital. From the north and from the east two arms of a great Red pincers snatched at Smolensk, a major Nazi base.

Before Smolensk can be reached, it is necessary to nip off the Nazi salient which points like a great arrowhead at Moscow. Rzhev, Gzhatsk and Vyazma were the three Nazi strong points in this salient. In one week of fighting the Russians stormed Rzhev and Gzhatsk, closed in on Vyazma.

During the same week they won a smashing victory farther north, halfway between Rzhev and Leningrad. Marshal Semyon Timoshenko and his white-clad ski troops struck suddenly in the Valdai Hills. They overwhelmed a strong German defense position based on Demyansk, cleared out 900 square miles of territory. This brought them almost to within striking distance of the Latvian border.

Bombs on Naziland

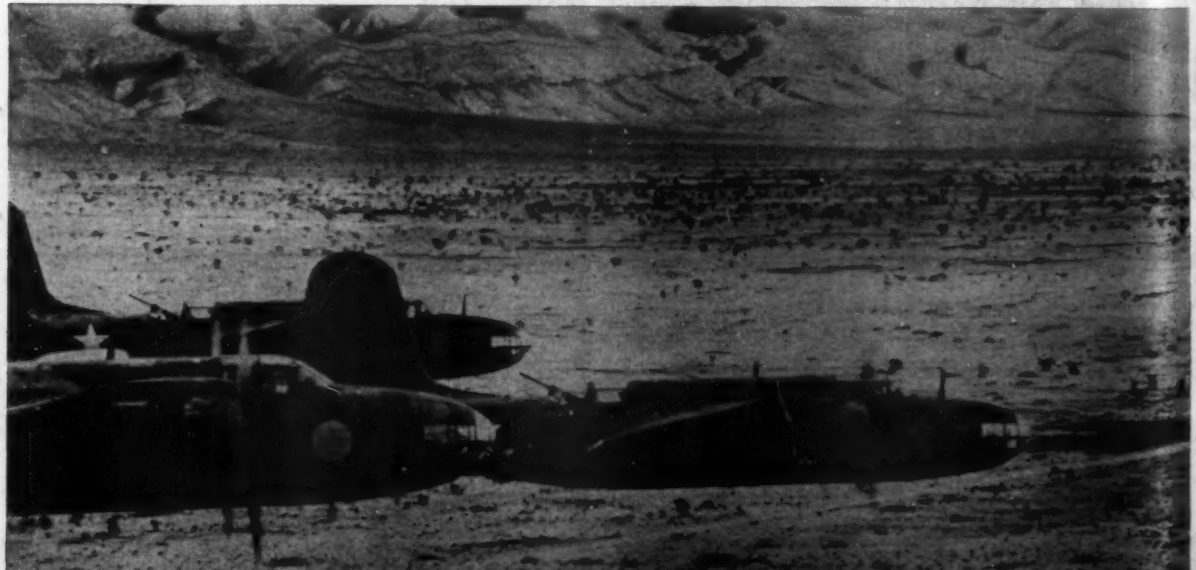
Germany is being bombed "around the clock." By day it is the precision bombing of U. S. Flying Fortresses and Liberators. At night British Sterlings and Lancasters carry out pattern bombing.

This division of labor was decided upon because the American bombers are fast and strongly armed, but have comparatively small bomb capacity. They can protect themselves in daylight, and they must make every bomb count.

The British ships are slower and lightly armed, but carry tremendous bomb loads. They are less likely to be attacked in darkness, and they carry so many bombs that they do not have to be too particular about planting each on a definite target.

The purpose of this combination work is to keep German defenses on a 24-hour alert, and to compel Hitler to keep both day and night fighters in Western Europe.

The ceaseless bombing disrupted German war plants, communications centers, U-boat bases. Captain Harold Balfour, Britain's Under Secretary of War, called the bombings "the opening bars which will rise to the crescendo of the march on Europe."



International News Photo

Attack bombers tear over objectives in central Tunisia at low altitude. Flyers say terrain is like Nevada's.

WORLD NEWS IN REVIEW

Germans Cornered

The failure of Marshal Rommel's desperate attempt to smash the American lines in central Tunisia left the Germans worse off than when they started. American troops re-entered Sbeitla, from whose olive groves and burning ruins their retreat had started two weeks before. This gave them control of a network of roads running in all directions, and put them in a position to threaten Maknassy and Faid Pass, Axis strongholds farther to the east. The Americans did not stop at Sbeitla but pushed toward Sidi bou Zid.

General von Arnim's offensive against the British First Army in northern Tunisia was also a failure. His tanks bogged down in the mud. British artillery smashed them and the Nazi infantry to bits. They stopped the drive cold, then began to press forward.

At the southern end of the front, the British Eighth Army was edging closer and closer to the Mareth Line. Allied planes were pounding at Axis bases and Axis morale. The Germans were cornered and weakened, but a cornered foe is always dangerous.

Gasoline for Spain

Carlton J. H. Hayes, American Ambassador in Spain, recently stated that the United States has sent Spain so much oil and gasoline that Spanish stocks are now "considerably higher than the present per capita distribution to the people of the Atlantic seaboard of the United States." Food and clothing, and strategic materials have also been shipped to Spain.

This statement shocked many Americans. They remembered that only a few months ago General Franco had expressed publicly his dislike of the democracies and his hopes for an Axis victory. The State Department was again "appeasing" fascists, critics charged.

The State Department explained that all the oil and gasoline sent to Spain comes from the Caribbean and is carried in Spanish tankers. It would not have come to the United States in any case. Furthermore, say defenders of the Administration's Spanish policy, our relations with Spain are so much improved that Spanish troops in Morocco are no longer a threat to our forces in North Africa.

Bishop in St. Louis Post-Dispatch

Flatten It While the Iron Is Hot

Manpower Draft Urged

The most drastic solution for the manpower problem is contained in a bill introduced into Congress by Senator Austin of Vermont and Representative Wadsworth of New York. The Austin-Wadsworth bill would authorize the President to draft for service in industry and agriculture men between 18 and 65, and would provide for the registration of women between 18 and 50 for war service.

Representative Wadsworth claimed that the manpower problem would be handled more satisfactorily by his bill than by the "work or fight" order of Paul McNutt, Chairman of the War Manpower Commission. The new bill, Mr. Wadsworth said, was intended only to raise men for the Army and Navy. It should not be used "as a club to force men into certain industries." Secretary of War Stimson supports the bill. Organized labor opposes it.

McKellar Bill Advanced

A much-amended McKellar bill has been recommended for passage by the Senate Committee on the Judiciary. The bill, opposed by President Roosevelt, would require Senate confirmation of all Federal employees who receive salaries of $4,500 or more a year, and who are not protected by civil service. It also would apply to hundreds of consultants paid by the day, and to many dollar-a-year men in Federal service.

About 30,000 Government officials and employees would be affected by this measure if it became law. Many key men in the war effort would have to be confirmed by the Senate.

Fortresses Delayed

Since last July, workers in Pacific Coast airplane factories have been demanding the same rates of pay that shipyard workers get. Their demands went to the War Labor Board, which did not consider them for seven months.

Recently, some impatient workers decided to prod the WLB. A mass demonstration in two big Boeing plants in Seattle (30,000 workers) stopped all work on Flying Fortresses for three hours, slowed it up for longer.

The public's reaction to this move was so unfavorable that the American Federation of Labor warned the workers against any more work stoppages. A few days later, the WLB granted the Boeing Aircraft workers a general wage increase of 4.5 cents an hour. Workers in other plants were given a boost of 7 cents an hour.

The employer members of the WLB and all but one of the public members voted in favor of this decision. The labor members and Wayne L. Morse, dean of University of Oregon Law School, opposed it. The labor members thought the increase was not great enough. It did not raise aircraft pay rates to the shipyard level. They also joined with Mr. Morse in objecting to the fact that the board had consulted Economic Stabilization Director James F. Byrnes before reaching a decision. They thought the board should act independently.

Men Not Working

"Absenteeism is merely a fancy word for a very plain, very stark, very ugly situation. The workers in our plants . . . are not on the job long enough, steady enough, reliably enough, and as a consequence, we are not doing a good enough job to win this war." This was Texas Representative Lyndon Johnson's explanation of the work or fight bill which he introduced into Congress.

Congressman Johnson's bill provided that employers and absent employees must report every three months to the War Manpower Commission, which would send the reports on "wilful" absentees to local selective service boards.

The problem was not as simple as Mr. Johnson's explanation. Some workers stay away from factories because they do not feel like working. In other cases the employers are at fault. Some are hiring men they do not need now but think they may need later. It is a temptation to such workers to take days off. Sometimes factories do not schedule their work properly. Absenteeism may also be caused by poor housing, overcrowded transportation, and fatigue caused by long hours.

TRANSPORT FUTURAMA

"LONDON express leaving in fifteen minutes!"

Passengers at New York hurry across the bridge leading into the great 400-passenger sky liner. The 16 powerful engines of the huge craft are idling in a smooth surge of power. Already some of the passengers are seated in the great dining salon eating breakfast. Seven or eight hours later they will be eating dinner in London.

Fantastic? No, sir. Such a picture is simply a very logical and direct extension of what has become a commonplace in this global war of swift transportation by air. The size of the flying liner may vary; it may even be greater. But one great aircraft manufacturer already has plans on the drawing boards for just such a 400-passenger plane.

There are many questions about post-war transportation that only time will answer. But there are other questions which we can safely answer now, with assurance that we will not be far wrong.

Let's look at the picture. It is one that has important meanings for all of us, for it will have much to do with the way we live and the way we think. A new era of transportation will be one of the rewards for our sacrifices in fighting this war.

The post-war period will be one of *specialized* transportation. Each type of transportation medium will find its place in a coordinated system.

The railroads will still carry the heavy cargo—the coal, the power plant equipment, the bulky manufactured products. Freight by rail will travel at high speeds. Some predict 100-mile-an-hour fast freights. This will be accomplished by equipping cars with roller bearings, and improving road beds.

What about passenger trains? Luxury will ride the rails, in the form of ultra-streamlined trains, offering many travel "extras" at lower rates, as the railroads compete with the airlines. They will be built of gleaming aluminum alloy, or other light metal, and will have plastic windows which admit ultra-violet rays.

On the highways, the buses too will go in for luxury and streamlining. To permit passengers to talk to anyone anywhere, they will be equipped with two-way radio. They will develop higher speeds over the system of super-highways which seems certain to come into existence.

Along these highways will speed tomorrow's passenger automobiles. They'll be lighter than present automobiles. Their light, powerful motors will burn 100-octane gasoline, the wartime aviation development, giving perhaps 30 or 40 miles to the gallon. Their speed will be 100 miles an hour, possibly more, on the straightaway top-speed super-highways.

There are two schools of thought among automobile engineers as to what the post-war automobile will look like. Some think that it will be simply a "dressed up" version of the 1942 models. Others think that it will be radically altered structurally, in something close to true "tear-drop" design, with the engine mounted at the rear. They see it as being made of brilliantly colored plastics, with a transparent top to admit health-giving ultra-violet rays. Fenders will disappear, and the extra space inside the car may permit new luxuries such as full-length divans, card tables, and movable chair-seats.

Along these same highways will move tomorrow's trucks, the vital land-link in the air transport system. Truck bodies will be designed to carry special cargoes. One development will probably be a removable truck body, made to slide directly into the cargo hold of the sky freighter, saving loading and unloading.

Developments in sea transport are harder to picture. It seems unlikely that the old type of liner will find much of a place in competing with air travel. Most steamship companies plan to operate their own airlines. Surface freighters of the future will be faster, better designed for special cargoes. It is certain that the American flag will wave over a truly great merchant marine that will make our country one of the leading sea carriers.

Air developments challenge the imagination. The spectacular manner in which freight has taken to the air during the war indicates startling possibilities. Designers predict 500-ton cargo carriers, huge airplanes especially designed to carry freight. The aerial "locomotive" pulling a train of freight-carrying gliders seems to be a definite possibility.

An immediate post-war possibility is the carrying of all mail by air. Even the smallest communities will be reached by aerial pick-up, using a device which enables a moving plane to hook bags of mail while in flight. Already 100 communities are served by pick-up service, and it has worked perfectly.

The private airplane may be a helicopter, or it may be a fool-proof variation of the present-day light plane. If it is a helicopter, it will be capable of landing in a front yard. A helicopter would permit one to come down to look at a street sign, for this type of aircraft can hover at any height above the ground. The light plane will be of the single control type, with no foot pedals, all controls being operated by moving a wheel. It will be spin-proof, and almost capable of landing itself.

Great sky liners will carry passengers in luxury as great as that once found on the liners of the sea. In the new air world, the landlocked cities in mid-western United States will become great world ports on the air ocean.

Transportation serves a global war. The swift transportation of the future will help to make a global peace.

LAUGHS

L of a Time

A teacher was helping a small boy to remember the L sounds with which he was having trouble. So she prompted him —

"You ring the _____?" she asked.

"Bell," he replied.

"You have a story to _____?"

"Tell," he answered.

"And with your nose you_____?"

The boy thought and shook his head.

"Oh, *you* know that," she encouraged. "What do you do with your nose?"

A light flashed in his face.

"Wipe it," he said.

Seating Problem

The story is being told of Henry J. Kaiser, who—while flying from San Francisco to Washington—had to relinquish his plane seat in Chicago to an Army major who had a priority. The major seated himself in the plane, and when it left the airport he was told how fortunate he was to have a priority. "That man who had to get off the plane to make room for you," the stewardess informed him, "was Henry J. Kaiser."

"Kaiser?" screamed the Army major. "I'm flying to Washington just to see him."

Leonard Lyons

How's That?

Grandpop (listening to radio): "Ouch, I'm getting lumbago."

Grandma: "Well, turn it off. You won't be able to understand a word they say."

Austin Pioneer, El Paso, Texas

Boland Coe in N. Y. Post

"Speak to him, sergeant — he seems to think the war's being fought against woodchucks."

Hi, Neighbor!

Privates Jack Kilfoy and Dick Mayer of Topeka, Kan., close friends, went into the army together but soon were separated.

In the same mail Kilfoy's parents, Mr. and Mrs. John L. Kilfoy, received letters from both boys. Each wanted the other's address.

The Kilfoys were glad to oblige. Both boys are in the same division at Camp Howze, Texas.

Associated Press

The Rivals

John Kemble, the English Shakespearean actor, was once performing in a country theatre when a child in the gallery started crying.

Annoyed by this rival performance Kemble finally walked with solemn step to the front of the stage and, addressing the audience in his most tragic tones, said: "Ladies and gentlemen, unless the play is stopped, the child cannot possibly go on!"

Christian Science Monitor

Telephone wire coming up
Here's a bomber-gunner hurrying to load his 50-calibre gun. . . .
In peacetime, a lot of that copper would have gone into new telephone lines. Now it's needed for shooting and winning the war.
That's why we can't build new lines right now. That's why we're saying—
"Please go easy on your use of the telephone—answer promptly—and make *sure* you have the *right* number when you do call!"
Thanks for all your help and we hope you'll keep on remembering.
WAR CALLS COME FIRST
COPYRIGHT ARMY AIR FORCES AID SOCIETY
BELL TELEPHONE SYSTEM

BOY dates GIRL

Title Reg. U. S. Pat. Off.

"How would you like to eat sea gull raw?"

18. On the Home Front

By GAY HEAD

"COME and get it!" Jeff, Midge's brother, called as she started downstairs. "Hello, you going out?" he asked, noticing her hat and coat.

"I'm invited to Joe Walasek's house for dinner," Midge replied, following him and her father into the dining room.

"Oh, the guy who was here Sunday afternoon. What's so wonderful about him? Does he have a C card?" Jeff cracked.

Midge ignored the crack and turned to her father. "He's nice, isn't he, Dad?"

"Huh? Oh, yes." Dad sat down with a grunt. "Golly, what a mob scene on that bus tonight! Just like a can of sardines! Believe me, those were the good old days when I rode home in my own car—"

"And drove in the country on Sunday afternoons," Mom added with a sigh.

JEFF took a sip from his cup and made a face. "There's something about tea that tastes sissy to me!"

"I simply can't stretch the coffee to six weeks. I don't know what we'll do for breakfast," Mom said grimly.

Dad was eyeing the cheese souffle with disapproval. "No meat again tonight?"

"And that same old *ersatz* butter." Jeff glowered at the plate of oleomargarine spread.

Midge, who had been silent through all this suddenly spoke up. "How would you like to eat sea gull raw?"

Jeff looked at her, startled. "What?"

"That's all Rickenbacker had for days when he was lost in the Pacific," she went on, her eyes flashing indignantly. "I should think you'd all be ashamed to gripe over a few things when—" she stopped at the sound of the doorbell. "There's Joe. Excuse me, please," she said leaving the room.

"Gosh, ready and waiting?" Joe exclaimed, when she met him at the door with her hat and coat on. "Sorry if I'm late but—hey, what are you looking so glum about?"

"Nothing." Midge glanced back at the dining room, as she closed the front door, then turned to Joe with a smile. "How are you?"

"Fine. Wait'll you see how those kids at home have slicked up for 'company' tonight!" he laughed. "By the way, I'd better tell you about our Home Front plan. Anybody who complains about *anything* at the dinner table has to do K. P. duty and, believe me, those kids can smell a complaint when you're just thinking it! Another thing, we discuss a different subject each night—tonight it's *Army Life*—and everybody contributes something interesting to the discussion."

"What a swell idea!" Midge put in. "How did you happen to start it?"

"I'll tell you." Joe flagged the bus at the corner and they got on. "I cooked up the scheme, when the kids started yelping about no desserts—on account of the sugar rationing. I figured if you talked about something interesting, you wouldn't have time to complain. Well, it worked like a charm and now they're sold on the idea. They've found out," he chuckled, "that by choosing the right subjects, they can get some of their homework done at dinner."

Joe went on talking about his family and, by the time they reached the house, Midge no longer felt like a stranger. She wouldn't have, anyhow, after Pudgy, the youngest boy, greeted her with, "Jeepers, you musta had a lotta face-fixing to do! I'm starved!"

WHEN they sat down at the table there was a big bowl of spaghetti, a plate of whole-wheat bread, applesauce, and milk for those who wanted it. That was all, but no one complained and everyone licked his plate clean.

Joe led the discussion, telling about a letter from an Army friend of his in the Solomons; Mrs. Walasek told about the work of an Army Camp hostess; Jane, Joe's older sister, recounted several funny stories from the book, *See Here, Private Hargrove;* one of the younger girls had a long list of Army slang, and Pudgy amused everyone with his lengthy discussion of "How to Dig a Fox-hole." Midge added her bit, telling about the Army's new Ration K, which she'd studied in Home Eck.

After dinner they all gathered around the piano in the living room and sang Army songs. Midge could hardly believe it was after ten o'clock when Joe said to her, "Sorry to make you 'eat and run,' but that's what you get for dating a guy who's on the grave-yard shift."

JOE took Midge home and left her at the door. When she went in, she found her family in the living room.

"Have a good time?" Mom asked, looking up from her knitting.

"I don't know *when* I've had so much fun!" Midge exclaimed enthusiastically. "It was different. They—" she stopped suddenly, remembering how she'd left her own family earlier in the evening.

Dad turned to her with a slightly sheepish smile. "You were right, Midge. We talked it over after you left and decided we weren't being good soldiers on the Home Front. So we've decided to put you in charge of morale. What are you going to do with us? Send us to the guardhouse?"

"No," she laughed, "but anyone who complains at the dinner table is going to get K. P. duty! That's one thing I learned tonight and the other is—"

By the time Midge finished telling about the Walaseks' dinner discussions, her family were sold on adopting the idea and Jeff commented slyly, "Say, that Joe Walasek must be a right sort of guy."

"Are you telling me!" Midge cried and then blushed furiously.

Your Career in The Merchant Marine

WOULD you like to be one of the men who man the ships that are transporting a global war? If so, you would do well to consider the many occupational opportunities offered by the United States Merchant Marine.

In the years after the war, American ships will be carrying the Stars and Stripes to every corner of the earth to cement a firm and lasting peace. So the opportunities offered you now by the U. S. Merchant Marine are not just for today, but opportunities that will extend far into the future.

The need for men is urgent. The new ships that will be built in 1943 will require thousands of licensed deck and engineer officers, and many more thousands of unlicensed personnel.

The Merchant Marine is a voluntary, non-military organization, and its vessels include passenger, freight, and combined passenger-freight vessels which are manned by licensed officers, staff officers, and unlicensed seamen.

To be admitted to officer training, you must be a student in either the Merchant Marine Cadet Corps, the State maritime academies, one of the licensed officer schools of the United States Maritime Service, or be an engineer from an approved technical college. Unlicensed seaman training is open to deck, engine, and steward personnel as well as to radio operators, cooks, and bakers.

An apprentice seaman must be a citizen of the United States, between 18 and 30, in good health, at least 5 feet, 6 inches tall, and must agree to serve one year in the Merchant Marine after completing his training. As an enrollee in the course for unlicensed seaman, you would be paid $50 a month and all your necessary clothing, equipment and supplies would be provided. It would cost you nothing, for your transportation expenses from the place of enrollment to the training station are taken care of.

During the 3-months probationary period your aptitudes would be carefully studied by instructors, and you would be assigned to one of the three departments. As a member of the deck personnel you would stand watch as lookout and signalman both at sea and in port. As an engineer you would stand watch as fireman, oiler, and watertender.

Officers' wages are higher, but so are their requirements. Either as licensed officer or as unlicensed seaman the opportunities are great and have much to offer any courageous young man.

ON WATCH: Seaman, in four-weather gear, scans water for enemy sub.

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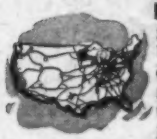
ECONOMY...
Greyhound pioneered travel economy—and today makes an *even more important saving*—using only a fraction as much rubber and fuel per passenger, per mile, as do private autos.



NATIONWIDE COVERAGE..
Serving nearly all of the U. S. A. along 65,000 miles of highways, Greyhound reaches directly more military centers and war-vital places than any other transportation system.

CONVENIENCE...
Frequency of schedules is now more important than ever—saving precious time, permitting the planning of trips for hours and days when travel will aid the war effort most.

SCENERY...
Just as motor buses have always revealed America's *natural* beauty spots, they now reach the factories, smelters, military camps and bases that are today's most satisfying "scenery"!

COMFORT...
Wartime passengers cheerfully accept a little less comfort and convenience than Greyhound offers in peacetime—knowing well that greater travel luxury than ever will come with Victory.

SUPER-COACH...
The Super-Coach, which revolutionized highway travel, now transports millions of selectees, men in uniform, war workers. Expect even finer equipment, when the war's won!

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